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Gleanings

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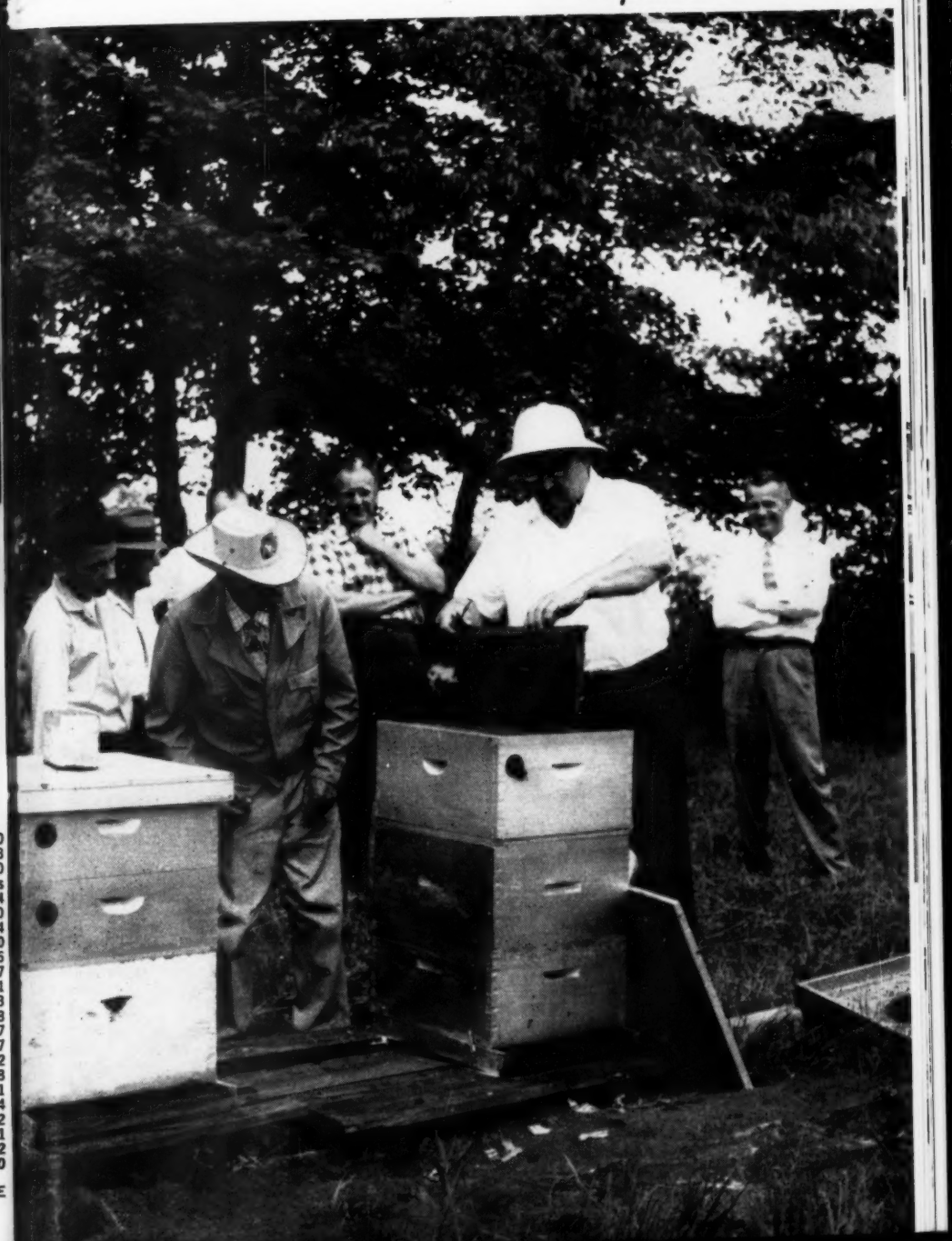

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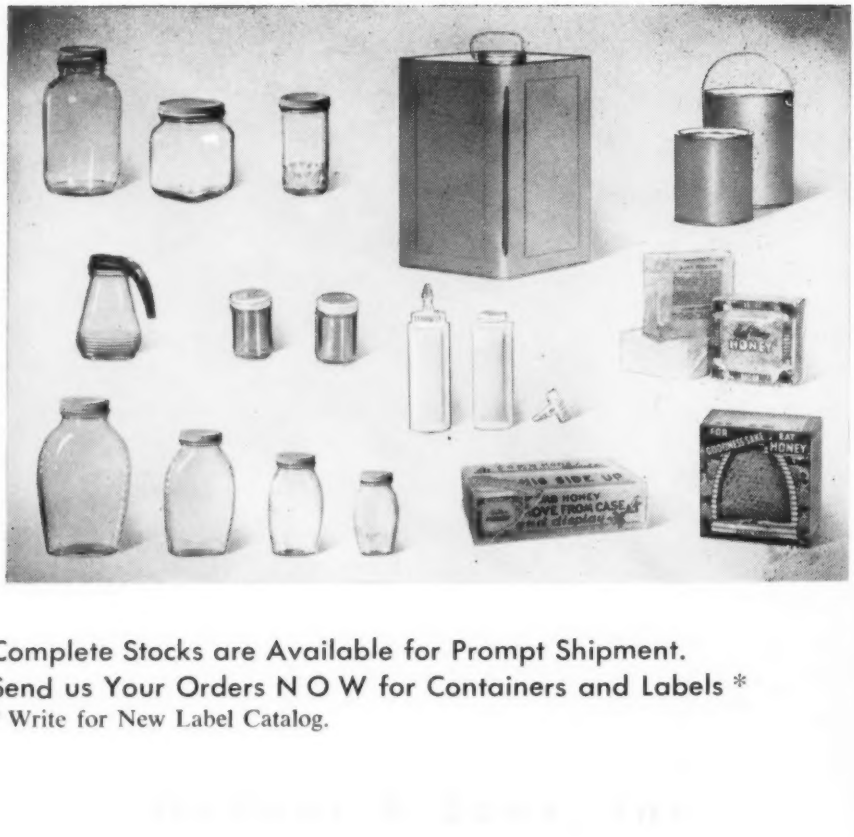

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September, 1961 CONTENTS Vol. 88, No. 9
88 Years Continuous Publication by the Same Organization

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COVER STORY — A Summer Meeting — Otto Kosman, president of the Cuyahoga County Beekeepers' Association of Ohio, manipulates a colony of bees during a demonstration at an outdoor meeting of the association. The outdoor meetings or, as they are sometimes called, field days, are especially attractive to the beginner and hobbyist beekeeper because of these demonstrations.

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Gleanings' Mail Box

JACK HAPP

Dear Editor:

May I pull up a chair around the pot-bellied stove and join in the conversation? I've got a point I'd like to bring up for discussion.

It concerns the short article "Safe Queen Introduction" by C. J. Koover in the June issue of Gleanings. Now either the writer of this article is using a different type hive from the ones I have, or his bees react in a different manner than do mine to extra space between the frames.

He makes no mention of the building of brace comb as a problem in his type of introduction — and that's exactly what I've been up against in his method, and why I discarded it.

Mr. Koover states that he inserts the queen mailing cage "between" two frames, but he makes no mention of the necessity of having to remove one frame in order to get space for the mailing cage — as I had to do in my standard ten-frame hives. If he is using a standard ten-frame hive I'm anxious to learn just how he inserts the queen cage between two frames, unless, of course, he is using a special mailing cage, made thin enough for the purpose.

On the several occasions when I have tried the method he describes, I found a mess of brace comb in each hive I opened. On some occasions the brace comb had been built up and over the mailing cage so as to almost bury it.....a beekeeper's headache.

I can just imagine those bees of mine on their discovery of the wide space between frames which I had to leave when I removed a frame in order to insert the mailing cage containing the queen.

"Look at all this extra space in our hive," they exclaim. "Let's get to work and fill it with comb."

And that's just exactly what they did, in some instances to the total exclusion of any attempt on their part to free the queen from her cage.

Just to make certain of my point, I broke off writing this and went out to the apiary to double-check. I opened a hive and tried to insert a mailing queen cage, wire side down, between the top bars of two frames—and it will not go in. And I use standard hives and frames manufactured by a reputable firm.

Again, Mr. Koover states that a week after the introduction he opened the hive and "the two frames are shoved together again." Now where did he get the extra space to push the two frames apart in the first place?

My mailing cages come to me measuring one and one-quarter inches wide by five-eighths inches thick, and I repeat that a cage of that width will not go into a hive, wire side down, between two frames unless one frame is taken out of the hive to make room for it. At least, it will not do so in my standard hives.

And with my bees as bad examples, the moment I take a frame out and leave an inch and one-half opening, my busy workers stop all other activities and go to work to fill the opening in their home with brace comb.

One would think that a single experience would warn a beekeeper against such a method; but not this writer. I'm blessed or cursed with more than my share of curiosity, and I wanted to see if the act of filling the space where the frame had been removed with brace comb was just incidental with the bees, or would they repeat it.

They did! And because I'm always trying to find out what goes on behind the scenes, I tried the same method several times. After digging out a mess of brace comb each time, I swore off. Never again! Now I use the entrance method of introduction. No fuss, no muss, no cuss! And best of all, no brace comb between the frames!

—H. M., Canada.

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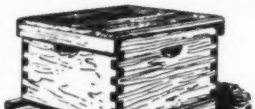

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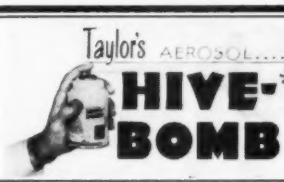

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Monthly HONEY Report

WALTER BARTH
Field Editor
San Antonio, Texas

MANY EVENTS of national importance have occurred since my last report which have had a big effect on our industry. We must point to the dropping of honey from the Freeman Farm Bill. Without discussing the pros and cons of the legislation, it must be noticed that Congress threw the Agricultural Secretary a bone by giving him the power to set up marketing-control plans for HONEY, lamb, turkeys, California apples, and peanuts. In time Gleanings will bring further information on the new marketing plans for honey and we should all examine it with a close scrutiny.

In regard to Government programs, I must draw your attention to a message from P.E.B. of Nebraska in the "Gleanings Mail Box" that appeared in the July issue of Gleanings.

Sometimes Government action is justified as in the case of the Pure Food and Drug Act which cleaned up any attempts to adulterate honey. Today, however, the penalty for adulteration is light compared to medieval Denmark, according to Robert Ripley, famous for his "Believe It Or Not" strip. Ripley reports that adulterating honey in Ribe, Denmark in medieval times was a crime punishable by death.

There is certain to be some discussion over honey imports at the National Convention at Biloxi next January. Beekeepers have expressed strong opinions on this subject to me at various meetings and by mail from various parts of the country. These opinions will swell into a furor with the news that during the first three months of this year more honey was imported than exported. Figures released by the American Beekeeping Federation show that we imported 3,100,000 pounds of honey during this period while only exporting 1,400,000 pounds. Since there has been no **major** increase in honey consumption in 1961 to precipitate increased imports, many eyebrows will be raised over this new industry problem.

Over the last 50 years there has been an increase in the use of sugars and syrups, according to Dr. E. Neige Todhunter of the University of Alabama, speaking at the International Congress of Dietetics, meeting in London. This was in contrast to the fact that there has been little change in the consumption of meat, fish, and poultry over the last 50 years. Consumption of dairy products and vegetables has also increased.

No specific mention of honey was made so we can only assume that the percentage of consumption increase was included with the sugars. We can only hopefully speculate that honey consumption has shown a healthy increase over the year, and some of the recent increase can be credited to D. C. Jarvis, M.D. and his book, FOLK MEDICINE.

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DURING RECENT years many complex developments have taken place in our economy. One such change is the increasing specialization in the production, packing and marketing of foods. Research combined with a desire for a better standard of living has brought about great improvements in methods and equipment for processing foods. Many fresh foods which were once available only for a short season are now processed, packaged and enjoyed throughout the year. This has permitted consumers to improve the quality, quantity and variety of their diets and has simplified the preparation of meals.

It is now estimated that between 80

and 90 percent of the food purchased at retail outlets is processed in some manner. About half the work involved in providing these products for the consumer is performed after the raw materials leave the farm. These services include processing, packaging, advertising, transporting, and distributing through the channels of trade. It is, therefore, not surprising that the final retail price for food is often double that which the farmer receives for it. This difference in price is called "spread" and much is heard about it these days.

The amount of "spread" varies and depends largely on the number and kind of services required to convert the raw product into a finished one for the consumer. A large spread does not necessarily represent a large profit for the processor or distributor. On some packaged foods the net profit is often less than one cent a container. During recent years the percentage of profit earned by the food processor is lower. Mark-ups at the wholesale level as well as at the retail level have also declined considerably. What is true of foods in general is also true of honey.

Early Day

Prior to the First World War most honey was produced by beekeepers with only a few colonies. The honey was usually traded or sold locally for cash soon after it was extracted. Today much of the honey is produced by commercial beekeepers, prepared for market in specal honey houses or plants and sold through the regular channels of trade by specialists in marketing. Specialization has increased the production of honey, made it a year around product, and improved its distribution to retail outlets.

Modern Equipment

New equipment which has been developed in recent years lends itself to efficient use of the honey house. In place of old fashioned hand methods, the modern honey packing plant is streamlined with hot rooms, blending tanks, flash pasteurizers, filters and other types of labor saving equipment. In a few modern honey plants the empty honey bottles are inverted on an unscrambling table which sends them along an endless belt through automatic filling, capping and labelling machines. The bottles finally arrive on a large circular revolving (pack-off) table from which they are returned to the cartons. Two or three men can now pack in a few hours what would formerly have required several da equipment reduced c formity a

Kenneth Wells' honey house near Coldwater, Ontario. It is a show place which has attracted thousands of customers each summer over the years.

Sales room honey pots

Quality a

Most honey, su and sprea flavor an brand or the consu quality ne the store. usually ar may be c ered by b ers it is n greatly in sumers sh a specific honey in we were we were

Experie years hav to pack uniform the honey

Sales room inside Mr. Wells' honey house. The honey is carefully packed in various kinds of honey pots under the trade name of "Owl Pen Honey" and it brings top prices.

several days with old fashioned hand equipment. Modern equipment has reduced costs and improved the uniformity and quality of the product.

Quality and Uniformity of Pack

Most foods which compete with honey, such as syrups, jams, jellies and spreads are uniform in quality, flavor and color. When a particular brand or pack of honey is enjoyed the consumer expects to buy the same quality next time he or she returns to the store. When this is not possible, usually another brand or type of food may be chosen. Since nectar is gathered by bees from many kinds of flowers it is not surprising that honeys vary greatly in color and flavor. Most consumers show a marked preference for a specific kind of honey. The best honey in the world is usually the one we were accustomed to eating when we were youngsters.

Experienced honey packers for many years have realized that it is desirable to pack blends of honey which are uniform in color and flavor. When the honey produced in their areas during any one year is too dark or too light in color or varies too much in flavor, they purchase enough honey from other areas to standardize their packs. If they did not follow this practice they would soon find that the demand for their pack would decline.

Some packers make a regular practice of blending two or three similar types of honey together. It is well known that the use of a honey in a blend which is high in levulose sugar tends to delay crystallization. People have a tendency to detect and enjoy even a slight flavor of a honey they like in a mixture of honeys. For this reason it might be desirable to pack a blend of three or more honeys of similar color and flavor.

Consumers now are more inclined to look for and purchase graded products. If a honey packer is merchandising a quality pack it is not difficult for him to meet the requirements of a U.S. Grade A or U.S. Fancy honey. Many large packers now follow the practice of having the grade printed on their labels. Before filling the containers they check each tank or lot of

Some well designed and attractive honey labels.

honey to make sure that it falls well within the limits of the grade.

The use of a neat container and an attractive label does much to increase the sale of honey. Some packers supplement their packs with containers which later may be used as tumblers or refrigerator jars. These appeal to the thrifty housewife. The word honey on the label should be large enough to be seen at a distance of at least 10 feet. The brand name, if one is used, is given second place in prominence and this is followed by the grade and the name of the packer or distributor. The picture of a bee on the label is now rarely used by large packers. To the average housewife a bee looks too much like an insect and most housewives do not like insects. A label with two or more colors which complement the color of the honey and worked into a simple yet attractive design, is the type which progressive packers now use.

Selling Honey

Most large packers find it is more economical and satisfactory in the long run to sell their honey through food brokers or wholesalers or distributors who in turn sell to retail stores. A broker usually sells five or six items and is well acquainted with the food buyers in his area. His commission usually varies from 3 to 5 percent depending on the type of food and the volume of sales. Since he usually sells several items he can afford to travel and experience long delays in waiting his turn to see buyers. Most brokers give little attention to the product after they sell it. They expect the packer to prepare a top quality product and to advertise sufficiently to insure a rapid turn-over of the product.

The wholesaler and the retailer take the same attitude toward a product as the broker. They soon lose interest in a slow moving item. Retail stores purchase goods that have the greatest turn-over per square foot of shelf space. They are in business to make money, and not to clutter shelf space with slow moving items.

The business of packing honey is very competitive. The margin of profit is so small that few packers feel that they can afford to invest much money in advertising. They depend largely on packing a quality product in an attractive container and hope that it will have enough eye-appeal to sell. When sales are slow or when

competition is severe they may resort to price cutting but this in turn reduces the price of all honey in the area and benefits no one except the consumer.

A few packers have attempted to sell their product through wagon-jobbers. These jobbers sell directly to retail stores and normally provide the service of carefully displaying the products in prominent places in the stores. This service helps to move honey but it is so expensive that it is difficult to keep the price of honey competitive with other foods or other brands of honey. Some producer-packers perform the services of a wagon-jobber themselves but few of them are able to break even on expenses. On the other hand, this method does increase honey sales and some producer-packers are content to take a loss on this service to gain more customers.

Some packers make arrangements with their brokers to employ demonstrators to hand out samples or in some manner draw consumers' attention to the quality of their product. This method also moves honey but it is so expensive that its use is questionable except to introduce a new product.

Most small beekeepers make a sincere effort to provide their customers with a quality pack in a clean attractive container at a fair market price. On the other hand a few of them use little reason or discretion. Occasionally they offer dark fall honey in five pound tin pails labelled clover honey. In some instances the honey is not properly strained, the cans are rusty or smeared with honey. Such deception or carelessness quickly turns people away from honey and the entire beekeeping industry suffers.

Small beekeepers frequently do not give enough attention to the price they should charge for honey. Mark-ups are necessary to provide remuneration for advertising, transportation and the time and effort devoted to selling the honey. In other words, when a beekeeper performs the services of the broker, wholesaler and retailer he is entitled to a fair return for his work. Occasionally small beekeepers offer honey to wholesalers, retailers and even consumers at the same price. They sometimes criticise the honey of other beekeepers or try to sell low grade honey on the reputation of a better grade of honey which they sold during a previous year.

(Continued on page 573)

Rocke's truck for delivering honey at Eureka, Illinois. Such a truck helps to sell honey.

To High School and College Students Interested in Bees

"A person with good high school grades should have little difficulty in obtaining financial assistance for college work."

DR. ROGER A. MORSE
Assistant Professor of Apiculture
Department of Entomology
Cornell University
Ithaca, N. Y.

DR. C. L. FARRAR, Head of the Bee Culture Research Investigations of the United States Department of Agriculture, stated recently "There is a shortage of trained personnel for work in Apiculture, the shortage is likely to become more acute. For example, 11 out of 18 professional employees in

the division have an average age of 58." Not only will many U.S.D.A. research workers in apiculture be retiring shortly, but there will also be vacancies in several states for state apiary inspectors, teachers, research workers, and persons interested in extension work.

Obtaining an advanced education is not always easy and money is quite frequently a problem. It is increasingly evident that our State and Federal Governments are interested in more education for young people. These agencies are encouraging advanced degrees by making scholarships or assistantships available in many fields. A person with good high school grades should have little difficulty in obtaining financial assistance for college work.

After four years of college training a person obtains a Bachelor of Arts or a Bachelor of Science degree. Many students are continuing their studies beyond this level and are obtaining either a Master of Arts, Master of Science, or Doctor of Philosophy degree. At this level, it is rather easy to obtain financial assistance, but only if good grades have been obtained in college. Within the past month, I have had letters from four different colleges inquiring about students who might possibly do advanced work with bees and beekeeping. The student who has a Bachelor of Arts or a Bachelor of Science degree and obtains an assistantship is usually paid between two and three thousand dollars per year while earning credit towards an advanced degree.

There are many reasons for encouraging advanced work and college degrees in the field of Apiculture. The honeybee will continue to be one of our most important pollinating insects. The production, handling, and marketing of honey and beeswax will continue to change and pose problems as marketing conditions in the world change. In addition to this, we are interested in honeybees for many other reasons.

The honeybee is an excellent laboratory animal for various biological studies. This is especially true for persons interested in evolution. There appears to be a tendency amongst animals to form societies. Social animals have many advantages over solitary ones since work and responsibilities can be shared. Certain termites, ants, and wasps are social but of all the social animals the honeybee is most easily studied. A honeybee colony can be moved, placed in an observation hive or a regular colony and easily regulated in size. Other social animals are not so easily manipulated.

A great deal of interest in honeybees has been stimulated by the recent queen substance theory. The fact that reproductive processes in an animal can be controlled by a chemical taken orally is most interesting. In the honeybee colony both queen cell production and ovary development in worker bees is inhibited by a secretion from the queen bee. This material (queen substance) is contained in a secretion from the mandibular glands in the queen's head. The chemical composition of queen substance has been determined and synthetic queen substance was made in laboratories in England last year. Feeding of this material to experimental colonies will be undertaken this summer at the Rothamsted Experimental Station in England.

There is little question now that other important secretions exist in the honeybee colony which control bee physiology and behavior. Much of the research in apiculture in the next few years will concern these materials.

Students interested in advanced studies and research on bees should be especially concerned about obtaining the proper background courses. Research in any biological field today involves a knowledge of physics, chemistry and mathematics. Research men are frequently accused of not communicating clearly; a good knowledge of English and public speaking are definite assets. It is important for students not to specialize too early in any one field; a large number of basic courses in several fields provides the researcher with many more tools with which to work.

Those of us engaged in teaching and research at Cornell are always glad to correspond with students and to discuss course work and admissions to the college and the graduate school. Teachers and research workers at other colleges and universties would be willing to do the same.

Using Three Brood Chambers In Florida

This is part one of another great article by the same author who wrote "How to Produce Big Honey Crops" and "Big Honey Crops with Two Queen System" which appeared earlier this year.

HENRY J. RAHMLOW
St. Peterburg, Fla.

THE PICTURE, Fig. 1, shows the result of three years "wondering if it could be done", and a year of "fun" on my part, working with the same system of beekeeping here that I had used for over 20 years in Wisconsin: using three brood chambers for one-queen colonies.

I wanted to know if large colonies with enough bees to fill at least two brood chambers, and with about 8 or 10 frames of brood, could be produced here in the "orange belt" of central Florida by about February 1st. Such colonies, I reasoned, should be able to bring in a large crop of orange blossom honey, which is so popular with tourists.

Methods Used Here

As a hobby ("once a beekeeper, always a beekeeper") I had visited beekeepers and observed colonies every winter since we retired and moved to Florida. No one I visited had ever tried using more than one brood chamber, especially not three, and I must admit I hesitated talking about using three because the usual comment was "it won't work down here — conditions are different".

Encouragement

In fact, I hesitated writing about this, to me, very interesting project until I read the article by Dr. W. Whitcomb, Jr. of Baton Rouge, Louisiana, in the May issue of Gleanings. On page 274 he states "A prolific queen supported by a good population requires **12 full** combs for eggs and brood. Because of space occupied by honey and pollen, combs can **seldom be fully utilized** by the queen for brood production, and the 20 combs of a **two-brood chamber** hive often do not allow full colony development. **Three-story standard hives are necessary"** . . . . .

With this authoritative statement, from a southern state, I decided to tell about this project because the results were so successful and significant.

How It Started

During our State Fair in February of 1960, I met Assistant County Agent, M. C. Jorgensen of Ruskin, Florida,

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Fig. 1. At Ruskin, Florida. On March 25, 1961, Dr. Floyd Moeller, left, and Assistant County Agent M. C. Jorgensen, estimate colonies managed with 3 brood chambers for one queen produced from 100 to 120 pounds of orange blossom honey. Smaller colonies, as at left, produced only 25 to 30 pounds.

which is just south of Tampa: He said, "I've had five colonies of bees for three years and have never extracted a pound of honey."

After some discussion he agreed to go along on this project if I would come over at regular intervals. "What can I lose", he said.

Before going into detail about the three brood chamber method as we used it in Wisconsin, I will give a brief summary of the project. We began using three brood chambers in March and April of 1960. The colonies built up well during the summer, swarming was easily controlled and in October they still had from 6 to 8 frames of brood. During October there was a honey flow from Spansh needle and considerable pollen was brought in. At the beginning of winter, the colonies had large populations and were heavy with honey and pollen.

Colonies for Comparison

In September 1960, Mr. Jorgensen purchased five colonies of bees in one brood chamber hives. They had fair populations. In October when I first saw these colonies, after returning from a two months' trip back to Wisconsin, I suggested we give them another brood chamber and allow them to store nectar and pollen from Spanish needle. We would then use them for comparison with the other colonies.

On January 28, 1961, we inspected all colonies. Those in our project had from 8 to 10 frames with brood and occupied two brood chambers. The colonies purchased in September had from 3 to 5 frames with brood. One of these, with 5 frames of brood, was used in the 15 frame observation hive at the Florida State Fair, February 7-18 and mentioned in the April issue of Gleanings.

Not a Good Season

At this point I should mention that the early 1961 season was not considered very good. Prof. John Haynie, Ex-

tension Specialist in Beekeeping, stated in his newsletter of January 31, 1961: "Colonies in North Florida have on an average of two frames of brood January 15 with many colonies just starting brood rearing."

On February 25, 1961, Mr. Jorgensen invited in some local beekeepers to see how the colonies looked and we explained the project to them. A few flowers were open on his orange trees, but not much nectar was coming in. On March 14th when the citrus honey flow was about half over, we had another inspection and meeting. By that time we estimated the strong colonies had from 30 to 50 pounds of orange blossom honey. The colonies purchased in September had some honey in their brood chambers but little in the supers.

A Good Crop in a Short Time

On March 25, 1961, when the honey flow from citrus was over, I invited Dr. Floyd Moeller, associated with Dr. C. L. Farrar in Bee Research Investigations, U.S.D.A. in Madison, Wisconsin, to go with me to see the project. He was on vacation with his family visiting relatives in Largo. He is shown in the picture, Fig. 1, and made crop estimates as stated.

By this time you may have formed the opinion that we have done something out of the ordinary. If so, you will be surprised at the remark Dr. Moeller made after we had gone through all the colonies and he had estimated that the "project" colonies had from 100 to 120 pounds of orange blossom honey. He said, "It seems to me the colonies aren't as populous as they could be." He added that the colonies he manages at the University of Wisconsin had larger populations than these. I readily admitted this was no doubt true, due to two factors: first because he was using much better queens and secondly, we were somewhat handicapped in 1960 because we had to start with combs of foundation in all brood chambers excepting the one used previously and in which there was considerable drone comb. I had told Mr. Jorgensen when we started the project that it would take a year or more to get well organized. This is our challenge: to have still stronger colonies in February of 1962.

Why Such a Great Difference?

How can there be such a great difference in honey production between colonies of different populations? Dr. Moeller explained it this way: "Actual population-production measurements show that one populous colony will produce more honey than two or more smaller colonies having the same total number of bees. For example, if one colony of 15,000 bees will produce 15 pounds of honey, then a colony of 30,000 bees can produce 41 pounds during the same time. The reason is, large colonies have a relatively smaller percentage of bees engaged in brood rearing and so, a larger percentage available for field work."

Of course, we can go on from these figures to 45,000 bees producing 67 pounds and 60,000 bees producing 93 pounds. The beekeeper must decide if he wants to have one very large colony or about six small colonies to produce a hundred pounds of honey during a certain period.

Indeed, is it not the same question all farmers have had to decide upon? Dairy farmers have changed from producing milk largely on pasture in summer, as my father and grandfather did, to feeding high producing cows on a well balanced ration every day of the year, as my brother did on the same farm, and thereby producing as much milk from one cow as grandpappy did from five. The illustration would apply as well to egg production from chickens by modern methods.

Why Such Small Colonies?

Going back now to Mr. Jorgensen's colonies when I first saw them in February 1960; why were the populations so small and why wasn't he getting any honey? He told me he was a beginner and hadn't taken good care of the bees because his work takes him away from home a good deal. He had not noticed any swarms and didn't have any method of swarm control. He planned to catch swarms if he saw any. His method of beekeeping was this: when a honey flow started, he placed a queen excluder over the one brood chamber, added some supers and hoped for the best.

I suspect each colony swarmed several times, thereby keeping the popu-

(Continued on page 571)

Low Cost Fall Increase

If your main honey flow is too early in the summer for increase then here is your answer.

WESLEY A. ORTH
Honesdale, Pa.

THE ARTICLE in February, 1960 Gleanings, by E. C. Bessonet, on "Bee Shippers' Labor Problems" was read with interest. The beekeepers here in the North certainly owe a lot to the bee breeders in the South for the usual high quality bees they send to us in spite of being caught in a labor - price squeeze. It was also rather surprising to learn that there is less demand for queens and bees than formerly.

It is probably no secret that the honey producers of the North are not immune to price squeezes either. Everything that is connected with the industry is high except honey prices. It therefore is necessary to try to do the best job possible at the least ultimate cost. It is well to study and scrutinize the various operations with the view of whether they are as necessary as we think, how they could be improved and how the efficiency could be stepped up. Try it and you may be in for some surprises. Other good sources of improved ideas are bee meetings and bee literature.

I like to winter one colony over the other with a screen board in between. In this picture the lower colony consists of three bodies, the upper of two. The dark narrow rim is a sugar rim and the screen board is just above this sugar rim. The upper colony also has a sugar rim but this is hidden by the cover.

Here in northeastern Pennsylvania we usually have a good fall honey flow from aster and goldenrod. By reason of this fact I have been able to increase my number of colonies at practically no other cost than the hive bodies, frames, etc. needed. Due to our rather late spring and early honey flow in June it is not possible to make any increase before the main honey flow. As the clover flow tapers off from the middle to the end of July and there is no important storage of honey until in September, I utilize this "slow" period for increase.

First, I take off all of the capped honey that I can, to get it out of the way so as to avoid handling those heavy supers. I then take the super that has the queen and young brood and eggs and set it temporarily to one side. All other supers should be set up as formerly except that a frame of eggs and/or young brood should be put in the bottom super of this pile. This frame may come from the queen super in this hive

(Continued on page 569)

The author faces his new package-bee colonies.

A Banker's Bees

"At seven or eight years old I was a failure at beekeeping."

W. W. WILLOUGHBY
Owensboro, Ky.

IT IS RATHER ODD that people remember unimportant things and forget important incidents. At least I do. One of my first recollections of being stung by a bee occurred as I ran barefoot across a field of blooming clover. I stepped on the bee and got stung. I realized that the poison sac must have a lot to do with the momentary but intense pain. I noticed then for the first time the construction of the bee's sting.

I also remember I once had a small wooden box which I drilled holes in and then captured bees on hibiscus flowers and blooms of mint. These bees were then put into the box and held for a while, then released. I hoped they would decide to move into the box permanently, but they never did. At seven or eight years old I was a failure at beekeeping.

A few years later my brother obtained a hive, or rather a box of bees. The box was referred to as a gum although it was not constructed from a log. The top part was called a cap. It was intended to be the storage place for the surplus honey. The bees were very weak and the wax worms, or moths as we called them, were taking over. In those days moths were blamed for the destruction of the bees. Now we know they are a secondary pest, not able to overrun a healthy colony.

After these bees died out we discovered a swarm on a cedar tree. They were very cross but we got them into the box hive and moved them that night. They soon disappeared. That ended my experience with bees for awhile.

In May of 1954 we were setting tobacco when a neighbor gave my father a swarm of bees if he would hive them. Dad didn't want the bees but said my younger brother and I could have have them if we hived them **after** finishing the tobacco setting. We were afraid the bees would be gone by then but we had to finish the job first.

The bees were about 15 feet up in a tree. I decided to throw two ropes over the limb which the bees were on, attach them to a nail keg, and raise it up under the bees. Then I planned to jar the limb and shake the bees into the keg. The keg was to be lowered into a bag. Simple! But it didn't work. A lot of bees fell off then settled on the outside of the keg. How could I get them inside with the others? The bees had been offered to a lady who was a beekeeper but she hadn't taken them. Now she arrived with a veil, smoker, gloves and brush. She brushed the bees into the keg, and put the keg into the sack. I tied the bag and they were captured. The keg furnished a rigid container so

they were not crushed. The burlap allowed air to pass through. The lady, Mrs. Melvia Lively, left the bees to me. I was glad to obtain a swarm of bees and she had made the task quite a bit easier.

I kept the bees two days in the keg while I constructed a box hive and wondered how to get them into it. I put the hive on a sheet, shook the bees out in front of the hive, and they went in. They remained two years in the box hive and I decided to transfer them to a standard hive. It was a badly executed plan and they left and went into a hollow tree. Two years later, after I had left the farm, a swarm came out of the tree. Dad and Mother put them into the hive which had been stored away. Beekeeping was now more interesting to me because I could observe the inside of the hive and I began to understand a little about these industrious workers of wonders.

The next year I bought two beehives and two packages of Italian bees. I continued to read about bees although I now lived in Owensboro, about 50 miles from the farm. I work six days a week in a bank and still try to keep bees. At present I have 20 hives, Italians and Caucasians. Because of the distance I live away from the bees, they are like the Indian's gun. They cost more than they amount to. But I can't seem to quit beekeeping. The more I work with them the more they fascinate me.

What beekeeper doesn't remember his first try at installing package bees? I do. I ordered the two packages and left a request at the local post office for them to call me when the bees arrived. They were faithful to the trust I put in them and called at two o'clock .....a.m. But I was glad they did instead of setting the bees against a radiator or smothering them under other packages for hours. This has occurred twice and probably will again (the two a.m. notice, I mean). I brought the bees home and put them in my room which I rent from my sister. This was on Thursday and the bees had to be held until Saturday, then ride 50 miles to the farm. I fed them several times a day, even coming home at lunch to check up on whether they were too hot, too cold, getting the right amount of ventilation, etc. My long-suffering sister has gritted her teeth while I made syrup for package bees, hard candy for winter, and messiest of all, combined hard candy with pollen substitute. I always clean up the stove, sink, pots and pans, and she hasn't lost her temper yet. I wish she liked honey more than she does. Syrup is just as good as far as she's concerned.

But I'm getting off the subject of package bees. When I got to the bee yard on Saturday it was getting late and I ran through the house, spoke to Mother and Dad, and went on out to the hives. They followed and aided me in the serious operation which was to follow. I was completely veiled and gloved and as soon as the bees were doused with a glass of water I opened the cages and dumped the bees over the frames. Dad reached down and with his bare hand brushed a wad of bees down into the hive. This dramatically illustrates to the uninitiated that package bees seemingly have every reason to be angry, but usually never are. The only sting I received was by a bee that crawled into my clothes and got pinched, even though I had pulled off my gloves so I could work better. Had it not been dark by then even that one would not have been crawling.

I am not an expert in beekeeping and the more I learn about it the more I realize how much is yet to be learned. But as a hobby beekeeper I have hived swarms and packages, raised some of my own queens from better stock, and I have bought established colonies and moved them by truck.

I try to keep my bees from swarming but I don't always succeed.

Living so far from the bee yard and working six days a week is a problem but my mother likes to work with the bees too, and she saves many swarms, feeds new colonies, and does the thousand little details that always need to be done. She once discouraged some boys who had apparently decided to steal or destroy some hives near the road. She made a regular inspection of the yard for several nights although I asked her not to go to so much trouble.

Another illustration of her interest in the bees occurred in January of this year. It was one of the first warm days

Experience taught me that colonies need plenty of honey to get them through the winter.

in a month or more and the bees were flying. Mother noticed some of them digging down into some fresh sawdust. She told me about this peculiar action of the bees and asked if I knew why they did this. I thought I did. I had read that bees will carry sawdust in the hive when they need pollen. I ordered six pounds of pollen substitute and began feeding it on February 13. In five days 15 colonies took over five pounds of pollen substitute, even flying through a light rain one day to get to the feeder. The substitute was soya flour and dried brewer's yeast mixed at a ratio of five to one. Because of a late spring I still have the substitute out and package bees are taking it in the hives. It is now late April.

The warm spell which occurred here in February also gave me my first chance to check the hives for honey as well as pollen. I found most of the hives had enough honey to last only a short while. I had also lost four colonies. This is the first winter I have lost a hive of bees but when I recall the weather I understand why. Last summer was very dry. The bees ran short of food, especially some hives I had bought already established late in the season. I expected a good flow of aster honey due to rains which finally came late in the season. But it didn't come in time and the aster flow was weak. I fed all the hives which were weak. All but a few were in single hive bodies. The feed was a medium-thick syrup fed by inverting a friction top pail over the hole in the inner cover. The bees took it rapidly and seemed to place it well in the hives. The use of tartaric acid seemed to help in preventing granulation of the sugar. It was not sealed and some of it was still in the hives in March. I believe this syrup will winter bees if necessary but I think it should be fed earlier than I fed it last fall. And it won't pay to try to economize here. It should be fed generously.

But to get back to the weather. After the dry summer and fall the winter was severe, with a lot of zero and sub-zero readings on the thermometer. This required the bees to use more honey than usual. I believe that two more weeks would have caused the loss of several more colonies. I fed candy to the bees and when that ran out I poured dry sugar over the inverted inner covers. I had never used dry sugar before and I was surprised at the bees ability to use it so rapidly. Of course, the days were warm enough for them to get water or there's more moisture in a hive than I thought.

I ordered five packages to replace the winter loss and installed them early in April. I had the combs already drawn out and figured the best thing to do was to put them to use. They have made good progress even though it has been rainy and cold most of the

(Continued on page 574)

Birds

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St. Louis,

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Birds and Bees

M. L. DUNCAN
St. Louis, Mo.

MY HOME IN suburban St. Louis is located in the center of a one acre lot at the end of a one way street with a grain field behind the lot, an excellent place for bees. My one colony is midway of the lot next to the field.

About 25 feet away, somewhat closer to the house, is a 16 compartment martin house atop a 20 foot pole. From my back patio I can see both the hive and the martin house, the martins busy raising their young and the bees equally as busy going about their own business.

One day I noticed what appeared to be bugs following the martins in for a landing. This seemed odd because it is well known that martins feed almost exclusively on bugs they catch in the air. Why then would bugs be following martins about? It seemed that almost one in four martins coming in were being followed by these bugs; sometimes two, three or even four bugs were following the martins. Quite often I noticed bugs following the martins away from their box or house.

I became interested and took up a post of observation closer to the martin house so that I could better observe those crazy bugs that followed their enemies around. In so doing I happened to also get nearer the hive and then, in an instant the mystery was solved. The bugs were not bugs, **they were bees!** Sometimes as soon as a martin landed on the parapet surrounding their house, the bees, after making one or two feinting circles, dived to their hive quite near me.

The fact that bees chased the martins both coming in and going out was not the only amazing thing. The bees could outfly the martins and martins are no mean flyers themselves. I have seen the bees put on a burst of speed, easily catch up, go around and come in with a side attack plainly trying for a contact which to me meant — sting. Often the martins coming in would find themselves being chased by two or three bees; when the bees came too close the martins always gave a sort of a twist and then continued around their house apparently with the hope of shaking off their pursuers. They seldom get rid of their small tormentors until the bees of their own accord leave the martins when some distance away.

To me this drama of the air reminds me to change the old phrase "The Birds and the Bees" to "The Bees and the Birds".

Push of Progress

E. d. FOX
Washington 22, D. C.

FRIENDS AND relatives dub me old fashioned. I am, in most of my thinking, yet I wonder if this is a fault in these days of hectic, speedy living.

Fourteen years ago when we had our home built, our location was considered rural. Life seemed slower and more peaceful. Progress cannot be halted, changes come and must be accepted, yet I cannot help but feel regret as old familiar sights vanish completely.

In the past three years, shopping centers and housing developments seemed to grow all around us like weeds in our garden rather than by mechanical construction.

With the building boom naturally much of the wooded sections, farm lands and quiet country lanes disappeared. Now the landscape is one small lot after another. From many of our hills the scenery is not the lovely green of forest but a view of dozens and dozens of neat rooftops. I grant the need of homes yet my heart aches with the loss of many trees.

Just recently the sound of bulldozer and the crashing of trees came to me from my favorite forest just beyond our acre. Our bees were familiar and frequent visitors to this wooded area. I went to view the scene but just could not watch the destruction of locust, tulip poplar, holly and huge cedar and pine. To me that bulldozer was an

(Continued on page 566)

An Approved Method for Repelling Bees From Honey Supers

AT THEIR MEETING in Omaha, Nebraska in January 1961, the American Beekeeping Federation, the Honey Industry Council, the Apiary Inspectors of America and the Association of Bee Supply Manufacturers **unanimously disapproved further use of carbolic acid** for removing bees from supers of honey. The United States Department of Agriculture, Entomology Research Division under the direction of Dr. C. L. Farrar, found a newer and safer repellent that will remove bees from supers more efficiently. This new repellent is known as **Propionic Anhydride.**

The following questions and answers were published by the United States Department of Agriculture in a Correspondence Aid No. 33-16 to familiarize beekeepers with this new development.

What is Propionic Anhydride?

Propionic anhydride has been found to be an efficient bee repellent. It is used to remove honeybees from sealed honey supers. It is not soluble but miscible in water. It hydrolizes slowly to produce propionic acid.

Why is the Use of Propionic Anhydride Better than Older Methods?

The new procedure is simple and highly functional. With propionic anhydride, the bees become gentle and are repelled from the supers in one to two minutes, in the shade as well as in the sun. With carbolic acid, the bees became vicious and five- to 20-minute exposures under full sunlight were often required.

Is Propionic Anhydride Safe? Does it Cause Any Change in Honey?

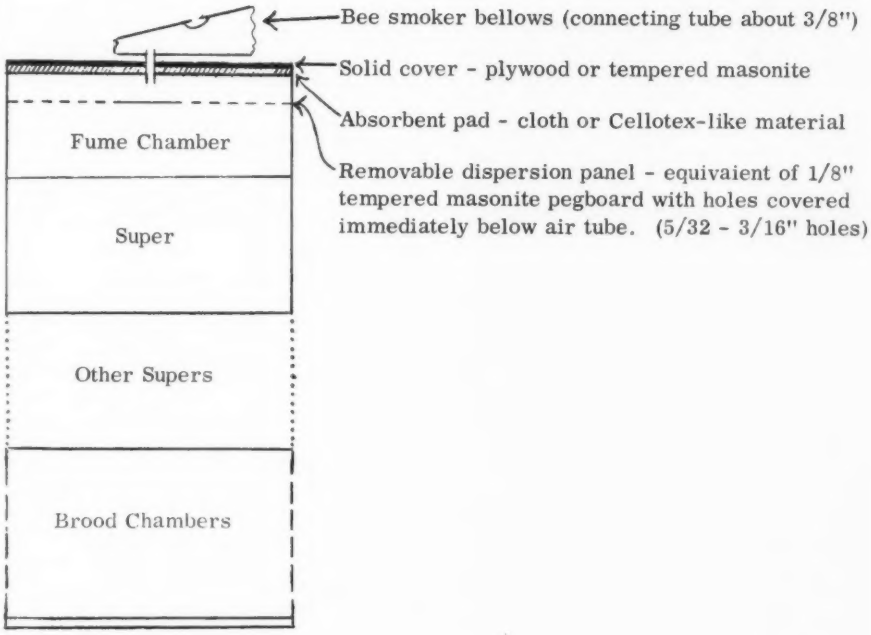
Mice exposed to propionic anhydride within the fume chamber and between super combs showed no irritation or injury. Bees repelled from their combs return to cover them within minutes if they are left on the hive after removal of the fume chamber. There is no change in honey flavor or odor.

What about Cost?

The material is economical to use. USDA scientists, in cooperation with Arizona and Wisconsin Experiment Stations, have demonstrated its efficiency from the standpoint of labor and material costs. There is also evidence that further research might provide a means for reducing apiary inspection costs to State departments of agriculture.

How Was the Use of Propionic Anhydride Developed?

The Entomology Research Division was given the responsibility of finding more suitable repellents or mechanical procedures that could be used safely and were economically practical. Under the direction of C. L. Farrar, Leader of Bee Culture Investigations, Madison, Wisconsin, fellow researchers, A. W. Woodrow, Tucson, Arizona, and F. E. Moeller, Madison, Wisconsin, found, after testing many candidate materials, that both acetic and proponic acids had good repellency under some conditions. However, neither met all operational requirements for different strains of bees or climatic


Bee smoker bellows (connecting tube about 3/8")
Solid cover - plywood or tempered masonite
Absorbent pad - cloth or Cellotex-like material
Removable dispersion panel - equivaient of 1/8" tempered masonite pegboard with holes covered immediately below air tube. (5/32 - 3/16" holes)
Fume Chamber
Super
Other Supers
Brood Chambers

conditions. In preliminary tests with propionic anhydride at Tucson, results were encouraging. Dr. Woodrow was sent to Madison where the scientists could compare materials and procedures on an operational basis. The new procedure was the result. It should promote expansion within the industry and help meet the need for more honeybees for pollinating agricultural crops essential to our national welfare.

Where Can Propionic Anhydride Be Purchased?

Propionic Anhydride is manufactured by several companies such as: Celanese Chemical Co., Eastman Chemical Products, Inc., Union Carbide Chemical Co. However, these companies do not sell in small quantities that would be required by most small beekeepers. Since one pound of propionic anhydride will do approximately 1,000 supers, very little will be needed. Most bee supply companies and dealers will soon have a supply.

Equipment and Procedure for Use of Propionic Anhydride (Practical Grade)

To charge the absorbent pad: Mix 1 tablespoon of the anhydride with 1 tablespoonful of water and distribute uniformly over the pad. To recharge: Use smaller quantities as needed but in the same proportions. A fiberboard pad requires more of the mixture in the first charge.

Place fume chamber over super and give 5 to 6 air-blasts with bellows. About 30 seconds later repeat by increasing air charge. Too much air will cause fumes to stupefy bees instead of repelling—too litle will not move them fast enough.

The fumes are regulated by the amount of air introduced. The dispersion panel is required to distribute the fumes evenly over all combs. The small initial air charge is needed to start the bees moving. Without the time interval break in air charge the bees will become disorganized and stupefied. Begin with small air charges and increase according to operating conditions.

Air temperatures, strength of colonies, honey flow conditions, and differ-

(Continued on page 573)

A Letter From A Scottish Beekeeper

J. Y. NAPIER
Glasgow, Scotland

ALTHOUGH THIS is a letter from a Scottish beekeeper I would not like to give you the impression that it describes typically Scottish beekeeping. I doubt if there is such a thing.

Scotland is a small country, with about the same acreage as South Carolina, but beekeeping conditions vary considerably from one part of the country to another. The west coast of Scotland is warmed by the Gulf Stream which crosses the Atlantic from the Gulf of Mexico. The result is that winters are milder in the west than on the east coast of the country, which looks out to the North Sea. The snarling Atlantic has shattered the western seaboard so that there are many islands and fiord-like sea lochs which have been gouged out of the land by the restless sea. In the northwest the land is mountainous and wild and sparsely populated. The eastern seaboard, with its fertile farmlands is colder in winter but drier and warmer in summer than it is on the west. On the east side of the country are the broad straths and rolling foothills. Girdled across the middle of the country is the lowland belt where the bulk of the population live and where industry is located. To the south are the southern uplands, semi-highland country with wide rounded hills. At the western side of the lowland belt lies the industrial city of Glasgow, where I live and work. As an amateur beekeeper, I run two small apiaries, both of which are situated on dairy farms.

In my part of the country all the farming land is employed in the production of milk. The undulating landscape is divided up into fields which are separated from each other by hedges of hawthorn (**Crataegus oxyacantha**). Belts of trees have been planted to break the strength of the wind which comes prevailingly from the southwest and from across the Atlantic. Crops that are grown on the fields are used for winter feeding of cattle; such crops are oats, hay (grasses) and turnips. Potatoes are also grown and quite a lot of the land is pasture for

summer grazing. On the pasture grows the wild white clover (**trifolium repens**) on which we depend for our main honey flow.

The winter usually fades away, gradually giving way, reluctantly sometimes, to the arrival of spring. Sometime in April the gean or wild cherry, the blackthorn (**Prunus spinosa**) and, later, the dandelion come into flower and provide the bees with a little nectar and fresh pollen to help them along with brood raising. Then comes the first major flow—from sycamore (**Acer pseudo plantanus**) in late May or early June. This flow is usually fairly reliable and supers have got to be on all hives ready for it. Unfortunately the honey has a very poor appearance and a strong flavor. Its dark greenish brown color makes it look like automobile engine oil. The sycamore flow ends at the beginning of June and then there is very little doing until the end of the month when the clover comes on. I like to see the bees use up their sycamore surplus in producing brood, the sycamore honey, if it gets the length of the extractor, can spoil the appearance of the clover honey.

The period between the end of the sycamore flow and the beginning of the clover flow we call the June gap. If the clover fails, as it not infrequently does, the June gap can be quite long. In a good season there is usually no gap at all. During the June gap, of course, the bees get cross and up to mischief and we must watch out we don't start them robbing. By the third week in June the clover ought to start showing up. Unfortunately it is not a particularly reliable source. The soil here is a heavy clay and in a wet summer the clover gets cold feet and gives no surplus. A warm dry summer is best for a clover flow, the clay soil holds onto its moisture for a long time which suits the clover, keeping it from getting dried up.

The next flow after the clover is from the limes (**tilia var.**). The limes usually take up whilst the clover is still yielding about mid-July and the limes see the bees into August. After that there is no more nectar to be had in quantity at home so the bees are moved to the heather (**Calluna vulgaris**). If the season has been good the supers are taken off at the end of July and taken indoors at home. The honey is usually a blend that is mainly clover and lime. The honey has a fine golden appearance and a good flavor. The bees are then prepared for the heather which usually involves some

Taking the bees to the heather. The stone wall acts as a windbreak and the fence keeps sheep from rubbing against the hives and knocking them over.

This beekeeper is holding a British Standard frame by its long lugs or ends of the top bar which are 1½" long. The British National Hive is square and the entrance can be made on any of the four sides. This particular hive has the combs parallel with the entrance.

sort of requeening. Some beekeepers don't bother requeening for the heather and they seem to do not badly, but the best stock for the heather is one with a young queen that has been building up a brood nest since early June. The heather is very hard on the bees and only a young queen can keep up with the death rate.

Scottish beekeepers are inclined to make a wee bit of a fuss about heather honey. It is true that every beekeeper in Scotland is within easy reach of the heather and quite a lot of it is produced. It has a bright amber color and a very strong flavor and aroma. It is mighty good stuff to start the bees robbing and any colony not up to strength is liable to be robbed out at the heather. Personally I don't like heather honey but plenty of other folks do, because it gets a better price than any other honey. You probably know that this honey is thixotropic — just like non-drip paint. Although thixotrophy is useful in paint it is a disadvantage in honey because it can't be extracted as ordinary honey. Heather honey, though, makes ideal comb honey from two points of view. First, the bees are able to produce wax very freely during a heather flow and, second, the wax is very white and heather comb honey has a good appearance.

I use British Modified National hives and Smith hives. The National hive takes 11 frames, 14 x 8½ inches with 1½ inch lugs on them. The hives have to be specially constructed to accomodate these long lugs but the housing for the lugs makes an ideal grip for lifting the boxes. The Smith hive takes the same size and number of frames but the frames have the more sensible ¾ inch lug. The Smith hive is simply a smaller version of the Langstroth hive. It has a top bee space, whereas the National has a bottom bee space. The Smith hive is the same width as the National but is 1¾ inches narrower. The two are therefore not interchangeable. Both hives have a shallow frame — 5½ inches deep. I have a few of these for supers but prefer to use the 8½ inch frame for brood and supers.

Double brood chamber working is popular with these hives and is what I use. This gives comb area in the brood nest equivalent to that obtained from about 18 Langstroth combs.

Sometime after the sycamore flow routine inspections for queen cells are begun. The brood boxes are cracked apart and the upper one hinged up. Any queen cells can usually be spotted right away on the under sides of the upper combs. If queen cells are found, the queen is hunted up and put with the combs on which she is found in an empty brood box which is then filled up with empty comb. This box with the queen in it is put on the floor, a queen excluder on top and then the supers. On top of the supers goes a "crown board" and on top of that goes the brood combs with bees and queen cells. An entrance is given to the front for the top boxes which is turned to the back about five days later. The bees up top are weakened by the loss of their flying bees which find their way into the lower stock when the top entrance is turned around. No cast will issue from the top stock and when the young queen is mated her old mother down below is disposed of and the stock is united again. Usually by this method the clover surplus is ob-

(Continued on page 567)

Research Review

DR. NORMAN E. GARY
Research Associate
Cornell University
Ithaca, N. Y.

Drone Maturity:

FOR ARTIFICIAL insemination of queen bees it is vital that mature drones be used for collecting semen. Drones ordinarily are sexually mature when they are approximately ten days old although food and temperature cause differences in maturity among drones of equal age.

Experiments conducted in California by Dr. Jaycox showed that drones in confinement without worker nurse bees in an incubator at 93°F. reached maturity as soon as drones which were allowed free flight or caged in a nursery colony. Drones caged in an incubator matured normally when fed only plain honey syrup or honey syrup containing four percent royal jelly or pollen.

Lower incubator temperatures retarded maturity. Such low temperature effects could be partially offset by the presence of royal jelly in the diet.

Jaycox, Elbert J.
The effects of various foods and temperatures on sexual maturity of the drone honeybee (**Apis mellifera**). Annals of the Entomological Society of America. **54**(4) : 519-523. 1961.

Temperature Effects on Two Species of Bees:

THE TOLERANCE for high and low temperatures has been compared in experiments with the Indian honeybee (**Apis indica**) and in the European honeybee (**Apis mellifera**). Groups of 100 bees confined in cages were given sugar syrup and water and exposed to various temperatures. In both species of bees food consumption increased rapidly as the temperature was lowered, indicating an increased production of heat resulting from a higher rate of metabolism.

At higher than normal hive temperatures food consumption decreased but water consumption increased in both species. It appeared that **Apis mellifera** is better adapted to temperature climates since this species survived better at low temperatures.

Free, J. B. and Yvette Spencer-booth
Effect of temperature on **Apis indica** workers. Nature. 190 (4779) : 933 only. 1961.

Modern Research in Apiculture:

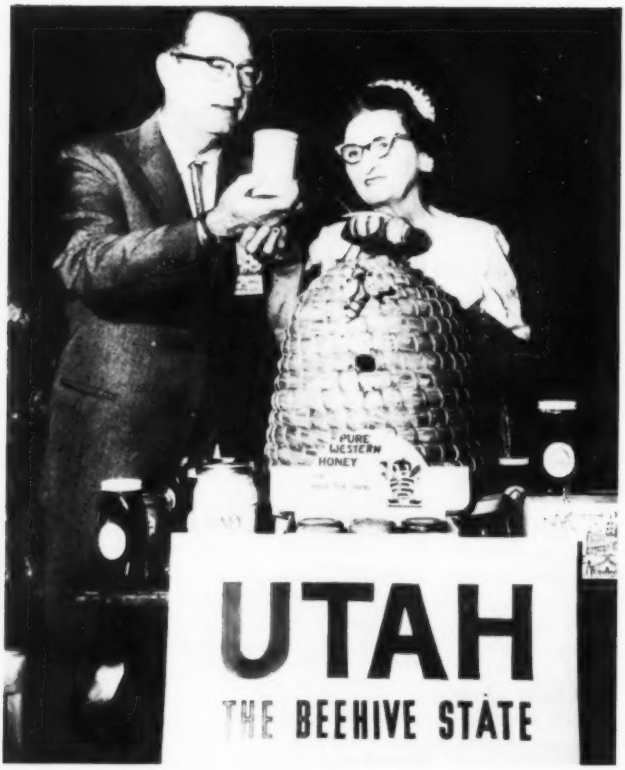
THE SEARCH for new knowledge in beekeeping is constantly becoming a more complicated business which requires increasingly sophisticated tools. The hive tool, smoker, and bee veil are still necessary tools of research but the horizons of research are narrow without well-equipped laboratories staffed with skilled scientists.

The best researchers of today not only have to know beekeeping but in addition must be highly trained in such fields as chemistry, genetics, and bacteriology. A decade ago researchers could depend on their senses such as sight and hearing to perceive the results of experiments. Today complicated pieces of electronic apparatus are replacing the human observer to a great degree. This trend is logical and absolutely essential since human perception of events is not only inferior to modern laboratory apparatus but is subject to personal bias in the interpretation of experimental results.

A good example of one modern tool

(Continued on page 565)

NEWS REEL



Mrs. J. Ross Hunsaker of the Salt Lake City Chamber of Commerce presents a jar of honey to Mr. Theo. A. Serrill of Washington, D. C., President of the National Editorial Association, at a honey display set up by S. K. Hampton in the lobby of the Hotel Utah during the 76th annual convention of the Editorial Assn.

The Stark County (Ohio) 4-H Club has a picnic on the grounds of The A. I. Root Co. of Medina after making a tour of the candle and bee supply manufacturing plants.

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Emerson Long (left) presents a plaque of appreciation to Chas. A. Reese, retiring Ohio Extension Specialist in Beekeeping, during the Ohio Beekeepers' Association Banquet, as Mr. Wilbur B. Wood, Director of the Ohio Extension Service looks on.

Miss Judy Hrushka of Boyne Falls, Michigan, is the 1961 Michigan Honey Queen. Judy is an 18-year-old honey blonde and the oldest daughter of Mr. and Mrs. Frank Hrushka. She graduated in June from the Boyne City High School and will continue her education this fall at Central Michigan College. Judy helps her father in his bee yards and during extracting time.—Photo by K. E. Farner.

Medina

Editorials

New Bee Repellent Found for Removing Surplus Honey

WE ARE PLEASED to bring to the attention of our readers a recently discovered bee repellent, Propionic Anhydride, for removing surplus honey from colonies of bees. It fills an urgent need, since the use of carbolic acid has been disapproved by the beekeeping industry.

Credit is due Dr. C. L. Farrar, Director of Bee Culture Investigations, Madison, Wisconsin, also fellow researchers, A. W. Woodrow, Tucson, Arizona, and F. E. Moeller, Madison, Wisconsin, for the important part they played in discovering this new repellent, which we feel will mean much to the future of the beekeeping industry. See page 536 for detailed information on how this repellent is used and where it may be obtained.

The Problem of Fermentation in Honey

DURING THE YEARS this problem has troubled beekeepers periodically. In some instances fermentation is said to be caused by yeasts that occur during certain seasons. According to Dr. A. G. Lochhead of the Division of Bacteriology, Central Experiment Farm, Ottawa, Ontario, Nature has evolved sugar tolerant yeasts which are able to live and thrive in high concentrations of sugar in which ordinary yeasts are completely restrained. So far as is known, they are the only micro-organisms capable of affecting honey. It has been found that some honey-fermenting yeasts are in the soil in or near the apiary. This soil becomes contaminated with yeasts from droppings of wax, nectar, and dead bees and may constitute a source of infection through such agencies as wind and insects.

There is also danger of yeast contamination in the apiary house, but this is within the control of the beekeeper. If he exercises precaution and maintains strict cleanliness at the time of extraction, and is careful to sterilize tanks and other utensils, yeast contamination may be reduced to a minimum.

The growth of yeasts in honey may be prevented — in fact, yeast may be destroyed by heating the honey to 145 or 150°F. for 30 minutes.

Supers of honey taken off during rainy seasons may start to ferment, even before the honey is extracted. This is due in part to a high moisture content of the honey. During rainy weather the bees are unable to drive off the excess moisture from the nectar.

Some commercial beekeepers are now using the dry-air method of reducing moisture content of honey in combs. The honey house is heated to 80 or 90°F. The supers, after being brought into the apiary house, are stacked up in criss-cross fashion, then one or more electric fans are placed in the room and set in motion to drive the warm air through the stacks of combs. It has been found that this method is quite satisfactory.

Colony Morale

THE FOLLOWING EDITORIAL appeared in the August 1927 issue of Gleanings and was written by the late George S. Demuth, former editor of this journal, during one of the best honey seasons ever experienced in this area. It came out of actual experience in Mr. Demuth's apiaries near Peru, Indiana. We still know too little about colony morale.

"There was excellent opportunity in the editor's apiaries this season to note the difference in the spirit with which bees work under different conditions. Since it was necessary for him to be at his desk 300 miles away from the apiaries just at the time the colonies needed most attention in coaxing them through the season in the highest working spirit, many things went wrong and upset the working spirit of a number of colonies in the very midst of one of the heaviest honey flows that has ever visited this section of the country. As a result, some colonies had finished five comb honey supers, and had four more that were well along toward completion by July 9, while others apparently as strong had finished only three supers with only two or three more on the hive.

"The poorest work was done by colonies which swarmed during the editor's absence and lost their queens, then failed to accept the young laying queen which was introduced after destroying all the queen cells nine or ten days after the old queen was lost. When no eggs were found on the next visit after introducing a young queen, a frame of brood was given these colonies which caused them to work much better, but on July 9 they were far behind the others. Just what the result will be at the close of the season is yet to be seen, since the clover honey flow was apparently at its peak at about that time. While the percentage of such colonies was small, the loss in a season like this is considerable. A few colonies that had been shaken in making artificial swarms lost their queens shortly after shaking, apparently by swarming out. The queens being clipped, the swarms returned to their hives but did very poor work until a young laying queen was introduced, when these colonies forged ahead in a surprising manner. By looking down the row of hives, the ones that were working best in supers could easily be picked out by the greater activity of the field workers.

"While keeping the working forces of strong colonies together without division during the honey flow is considered orthodox teaching, one wonders if in a season like this it is not folly to compel such enormous colonies as prevail in the clover region this season to work in one hive during the honey flow. It is surprising to note the amount of honey stored by nuclei in comparison with the work of strong colonies when the number of workers is considered. Apparently the workers in a nucleus or small colony gather and store much more honey in proportion to their numbers than do a strong colony. If by careful management the strong colonies could be induced to work with the same spirit as small colonies or newly-hived swarms during a season like this the result would be astonishing.

"In a few cases colonies were divided during the honey flow with the result that the colony left on the old stand was well along on its ninth comb honey super on July 9, while the division set to one side had already filled two supers. The combined production of the two colonies in these cases was two supers more than the best colonies in which no division was permitted.

"There must be a limit somewhere to the number of bees that will work in one hive to the best advantage in comb honey. In producing extracted honey, the bees of the colony can be more easily induced to distribute their work through the great pile of supers, which makes this quite different than in producing comb honey when the bees are compelled to build comb. No such differences in the working spirit of colonies as described above was noticeable at any time in colonies working in extracting supers. They forged ahead at high speed as long as they were supplied with plenty of empty combs, even when queenless. Apparently the building of comb is first slowed down in queenless colonies, which later results in a slowing down of field work because there is no place to store the incoming nectar.

(Continued on page 574)

Live and Learn

PROPOLIS PETE

LAST MONTH, when I wrote this page, things looked pretty bad. On July 1st, the day I wrote it, there was absolutely no honey above the brood nest in any of the hives, and darned little in the brood nests of the best colonies.

Around the middle of July, some hives started to work a little in the shallow supers of drawn comb. So, while I won't get anywhere nearly enough to satisfy all of my customers, I will be able to make token deliveries. Maybe I'll use only one pound jars to stretch it out. What the bees are working is a mystery. During the time when the regular honey plants were blooming, they didn't get anything more than their daily needs. I can't find anything blooming now that ordinarily interests them. There is a lot of chicory blooming in waste places. But chicory blossoms close up around noon time, and this flow, whatever it is, seems to be coming in late in the afternoon. From about four thirty to sunset, the roar from the colonies sounds like the good old days. The uncapped honey in the combs seems to be quite dark, and there is no honey smell. Could it be that it is honeydew? That figures in a year like this, although I have never had it before.

Something else happened this spring and summer that makes me wonder if one of our old stand-by practices could be subject to amendment. So many times it happens that we learn something, either by reading, hearsay, or just following customs, and, because it seems to be right, we accept it as truth. This may be a roundabout way of getting to the subject, but I wonder just where the dividing line is, when we say that drawn combs are an asset.

There is no question in my mind that a newly drawn comb that is all worker cells is valuable. There is also no question that an old brood comb that is half drone cells should be culled. The question that bothers me is, does a drawn comb that apparently is all worker cells, ever become a liability instead of an asset?

Years ago, when I used deep supers for surplus honey, I took a lot of pride in the pretty picture made by combs solid with sealed brood. By using bodies that were interchangeable for both brood and honey, every winter I could and did cull out any comb that looked as though it were not quite up to par. Then I shifted to shallow supers for surplus, because the deeps became to heavy to handle comfortably, and have ever since been disturbed because I didn't have the chance to cull out combs that were not quite what they should be.

For the past three or four years, I have been bothered because a lot of my queens were laying a very scattered pattern. Even when I requeened, the ragged pattern persisted. This year it was particularly bad. Whether or not it was the season is not known, but I never had so much trouble as this year. I got a hint of what could be the trouble when one of my queens suddenly decided that she would lay nothing but drone eggs. Right in the middle of the hive, in a comb that just happened to have almost no drone cells, there appeared a solid block of capped drone brood. It was a pretty picture, even though it meant trouble. These drones, when they emerged, were the cutest little things you ever saw. They were just about half the size of a regular drone. Apparently they stopped growing when they filled the cell, and that seemed to mean that the size of the cell had a lot to do with the size of the bee in it.

Now, if this is so, could it be that an old comb that has had maybe 50 or more cycles of brood hatched out in it, has worker cells so filled with old cocoons, that they are no longer suitable for brood raising? Could it be that in the colonies where my queens scatter, that the cells she skips are not fit to rear brood? Could it be that I have been replacing queens that were not responsible for the symptoms that they were failing?

(Continued on page 573)

Prickly Ash (Xanthoxylum Americanum).

Let's Talk About HONEY PLANTS

DR. HARVEY B. LOVELL
University of Louisville,
Louisville, Ky.

PRICKLY ASH (**Xanthoxylum Americanum**) or Devil's Club, is widely distributed in the Eastern States, but rarely abundant enough to produce a surplus. But at Rockton, Pennsylvania, Jason P. Hollopeter got such a surplus of prickly ash honey in 1911 that it changed his beekeeping program from comb honey to queen rearing because of the bitter flavor of the honey.

Mr. Hollopeter writes "It was in 1911 when we had our first experience with it, but in 1914 we really had a deluge of it; bees could fill a deep 10-frame super in less than a week and you could hardly get them on fast enough. Yields averaged about 150 pounds to a colony in the Devil's Club area. We have never had it in quantity since — other plants taking its place. Bees will leave buckwheat to work on it. The flavor of the honey when pure and strong is something like that of the prickly ash berries taste, a sort of quinine flavor. It is a light-colored honey, not as light as clover, and with a more greenish color, very good body, does not candy easily, and if left over winter often loses much of

the strong flavor, and when blended with buckwheat honey the mixture loses most of its objectionable flavor. A few customers like the strong flavor of prickly ash honey and ask for it pure.

"It is a small shrub which grows to a height of several feet and when bees work on the bloom they sound like a swarm. The honey is clear and does not have an offensive odor, the first taste is good and not until it lingers on the tongue awhile does the Devil's Club flavor come out strong. It could possibly be most valuable for health, for it surely has a vim, vigor, and vitality to it. It proved ideal for the rearing of queens."

There are four species of Xanthoxylum in southern United States, all producing strong honey of some value to beekeeping. **X. Americanum** grows from Canada to Virginia west to Nebraska. **X. Clava-Herculis** grows from Florida to Texas, often produces a small surplus of strong, pungent honey in east Texas. **X. fragaria,** colima or wild lime, common in northern Florida, occasionally yields a small surplus.

Prickly Ash in North Carolina, according to H. H. Root, yields a honey which stings your throat. It is a good-looking honey, but it makes you cough and choke. Mr. Root was given some to taste at a meeting some years ago and was asked what it was. Everyone was amazed when he said right off that it was a prickly ash honey. He confessed that he had been given some in advance so he easily recognized the burning taste.

Mrs. Katherine E. Wilson describes two more honey plants in the June issue of Colorado Bee Notes.

Purple Loosestrife (**Lythrum salicaria**). Here is a nice perennial, which is being grown much more as a garden plant. In wet country it will escape to the swamps and cover acres of wet land. In Colorado Mrs. Wilson wries "The blooms open in early July and last until the first heavy frost, thus providing the bees with a fine quality late season nectar. For best growth the plants should be kept moist."

Tartarian Honeysuckle. (**Lonicera tartaria**). "Showy blossoms appear on the shrubs the last of April and remain for about 10 days. The flowers are sweet smelling with bees swarming all over them. It produces blooms for only a short period but at a time of year when nectar is sorely needed for brood rearing and stimulation," writes Mrs. Wilson.

Mango (**Mangifera indica**). I recently received a bottle of mango honey which is made by Shangri-La Groves at Bee Ridge, Florida. The owners, Pat and Betty Miville write, "Mango honey is a freak. It has never been consistent. The pollen count will run about 65 percent. We usually get a better grade in extremely dry weather. The quantity is limited and when we get it, standing orders are then filled. The average yield is about 50 pounds per colony." In an article reprinted from the Sarasota Herald-Tribune the Mivilles state that mango honey is a collectors' item which they might not get again for five years. They also have a mango and water hyacinth blend. The mango honey is a reddish amber with an interesting flavor. Mr. Miville settled near Sarasota at Bee Ridge because of the name which was given to the area when the early settlers found so many wild swarms there. The Mivilles also keep bees in the Everglades and in Okeefenokee Swamp, places free from the smoke and dust of civilization. Mr. Miville can identify all his honeys by their flavor.

The mango tree is evergreen, grows 30-40 feet high. The flowers are small and produced on terminal panicles usually containing over 2000 flowers. The fruits are eaten raw, either plain or sliced with wine, sugar and nutmeg. A good tree will produce up to 9000 fruits within eight years. Bailey states in the **Cyclopedia of American Horticulture** that the mango deserves to be planted in well protected land all over South Florida. The best soil is high, well drained, sandy soil but the mango thrives also on black jack, scrub and pine lands, where most other trees are a failure. For good fruit fertilize with plenty of ashes or sulphate of potash.

KEEP

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SEPTEMBE

Honey Currant Upside Down Muffins.—Photo courtesy of The Kellogg Co.

For Those Nippy Days

MRS. BENJ. NIELSEN
Aurora, Nebraska

DESPITE SUMMER'S lingering heat there are, every now and then, decidedly nippy fallish days when the warmth of an oven is most welcome. Once again our thoughts turn to the more substantial honey baked goodies. Rolls or breads waft delightful aroma, crusts are temptingly rich golden brown, real appetite sparkers.

This honey bread is a prime favorite in the Nielsen household. It remains pleasingly moist and makes superb toast, though it does require a bit longer toasting time.

Good baking to you!

Honey Currant Upside Down Muffins

Two cups whole bran cereal, ¾ cup honey, 1¼ cups milk, 1 egg, slightly beaten, 1 cup sifted flour, 1 teaspoon baking soda, ½ teaspoon salt and ½ cup currants.

(Continued on page 573)

Nucleus colonies containing queen-confining cages with queen excluder side-walls. Similar brood-producing units could be used above queen excluders on normal colonies.

Mass Production of Honeybee Larvae

A new technique has been developed at Cornell for producing larvae which can be used for food and research purposes.

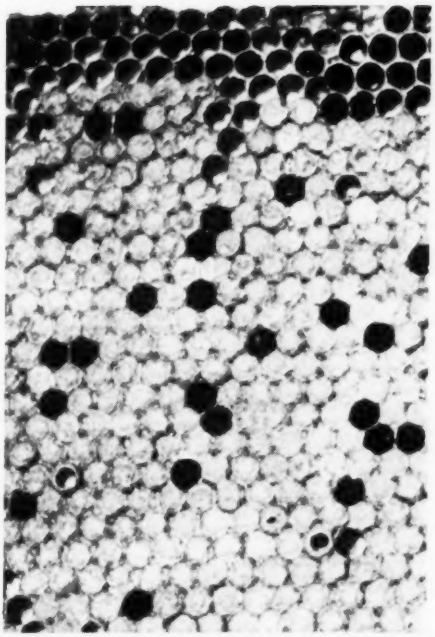
DR. NORMAN E. GARY
Department of Entomology
Cornell University
Ithaca, New York

AT SOME TIME during the thousands of years which have passed man has utilized almost every animal on earth for food. Staple foods have been those

which could be obtained easily while the relatively rare foods usually have been considered to be delicacies. Flavor and nutritional value do not always influence our tastes since we are trained to prefer certain foods early in life. Thus some prefer raw oysters while others are strict vegetarians. We eat chicken and turkey but rarely sample many other types of fowl. Many people eat honey, pollen and even royal jelly but few people have ever thought of bee larvae as a delicious and nourishing food.

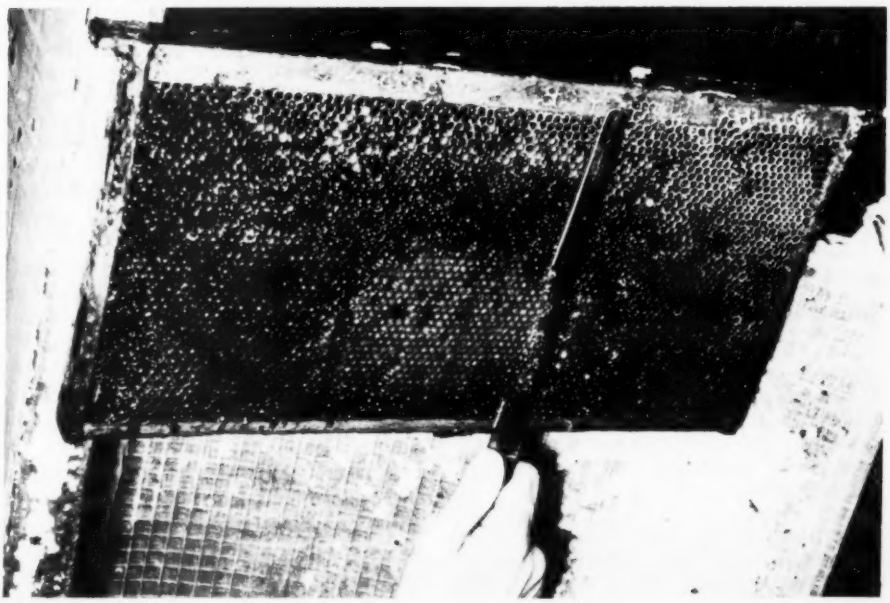
Until recently bee larvae have never been considered seriously as a food for man or other commercial and domestic animals because of the difficulties experienced in production. Since most of these shortcomings of production have been overcome it is appropriate now to consider means by which this product can be exploited commercially just as honey, pollen, beeswax and adult bees have been exploited.

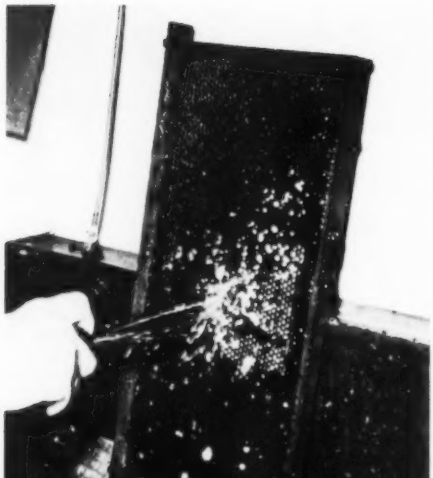
Honeybee brood has been investigated recently as a human food by Hocking and Matsumura in Canada. Taste tests were conducted to evaluate bee pupae prepared by a variety of methods. The results were that deep-fat fried, butter fried, or baked brood were preferred to smoked, pickled, or brandied brood. Chemical analyses of mature larvae revealed that they have very good food value for man. The protein content of larvae (15.4%) is



Larvae are harvested at the capping stage for maximum yields.

Sealed cells containing larvae are uncapped with a thin, cold, serrated knife.





A jet of water sprayed on the comb gently forces all larvae from the cells. Larvae fall to a cheesecloth filter where they are simultaneously washed. Approximately one-half to three-quarters of a pound of larvae can be extracted from each comb.

about the same as contained in egg yolk (16.3%).

Fat content in larvae (3.71%) approached the fat content of milk (3.9%). Furthermore, bee larvae are extremely rich in vitamins A and D. In short, there is no good reason, aside from personal prejudices, that bee larvae should not be considered a delicacy and be developed as such on the food market. Bee larvae are no more exotic in nature than many foods such as caviar.

Production of Bee Larvae

In our experiments, small five frame nucleus colonies were used since they could be manipulated easily. However, colony size is not very critical. Brood rearing was concentrated in certain frames by confining queens in a cage having queen excluder walls. This insured uniformity of larval age at harvest time. Every fourth day the comb filled with eggs was removed from the cage and replaced by an empty brood comb. Brood was allowed to develop until most of the larvae were capped. At this time (9 to 11 days) they attained maximum size, increasing the yield accordingly. Many variations in management are possible in the colonies used to produce larvae but the primary objective is to concentrate brood of the desired age in certain frames to facilitate harvesting.

Once the larvae attain maximum size, the cells can be uncapped with a thin serrated knife. Extraction of larvae from the cells is accomplished easily and efficiently by merely spraying the comb with one or more jets of water. The larvae from both sides of a comb can be removed very quickly and they are not crushed or damaged by the water extraction process. The extracted larvae are allowed to fall onto a cloth filter such as cheesecloth which is supported on a wire grid. They may be washed and packaged as desired for storage or shipment. Following larval extraction, the water is shaken manually from the cells and the combs can be returned to the queens for further brood production. These dark empty brood combs are preferred by queens and maximum egg laying is encouraged. It is possible to produce and harvest at least one pound of larvae each week from each producing queen.

Since the entire diet of bee larvae is composed of foods that have already been accepted for human consumption, that is, honey, pollen, and royal jelly, there is no reason why bee larvae cannot be regarded as a wholesome food. Those people in food research who have already sampled pupae claim that they have a flavor similar to walnuts.

Even though food prejudices may delay the acceptance of bee larvae as human food, there are probably many experimental or pet animals such as fish or birds which might find bee larvae an attractive food. Recent research at Cornell (Gary, Ficken, and Stein, 1961) has indicated that bee larvae may provide an ideal food for insectivorous birds in confinement. Many confined animals in zoos or in laboratories normally would eat insects

(Continued on page 569)

Requeening Colonies

"Never wet bees or queens with sugar syrup as it will either kill them or shorten their lives."

S. J. HEAD
Crossett, Arkansas

HONEYBEES MAY take care of themselves, as evidenced by often told stories of a certain bee tree that had stood for many years without the intrusion of man. When we keep bees for a living we want bees that produce, so we go to the trouble and expense of providing them with a hive we think suits their needs.

I believe that good queens are the best investment a beekeeper can possibly make. Even though we have the best of equipment and locations unless we have good queens we will not reap a profit. We all know the queen is indeed, as Dr. Miller said, "THE SOUL OF THE COLONY".

It is good beekeeping practice to replace a queen that is not desirable. Perhaps she is too old or may be of a stock we do not want or just a poor producer.

There are many methods of requeening and I often think there are as many different methods as there are beekeepers. What works well for one person may not for another. As a rule a colony can have the queen removed and a new one introduced in the regular mailing cage she comes in and all will be well. I find this the easiest way when nectar is coming in and the weather is nice. But suppose you have to requeen when the weather is nasty, no honey coming in and bees robbing, then you do have a problem.

From my 30 odd years' experience rearing queens and general beekeeping I have found it best to never remove the queen from a colony until you are ready to put in the new queen. I know many will object to this; but the purpose of this article is to try to help beekeepers to get their bees requeened and not to engage in arguments. I think as soon as a queen is removed from the colony the bees sense her loss, and much quicker than many of us think. I will try to outline several methods I use with good success.

When I use the regular Benton cage, (the kind the queens are shipped in) I take a match stick and punch a small hole clear through the candy after removing the cork from candy end. I then put a few drops of honey from the hive I am requeening on the candy end, allow it to run through or nearly through the entire tunnel in the candy. I remove all the worker bees from the cage, leaving the queen alone. This will cause the hive bees to feed the new queen which they will always do if they are queenless. After removing the old queen I think it best to kill her and leave her in the hive. I place the cage between two combs of brood in the center of the brood nest. I place the cover on and do not disturb for several days. If a flow is on, this will work well for me here.

Young bees never hurt a queen. The older the bees the more likely they are to kill a new queen. So I found that should I wish to requeen a colony and I have a little time for it to build up, say no flow for a few weeks, I find it pays to just pick up the hive and move to a new stand allowing all the old field bees to drift into the neighbor

hive from whence it was removed. Then the old bees are away and the younger bees will take the queen. Also in all cases give emerging brood if they have none. If you requeen black bees with yellow queens, always give a comb of emerging brood if this is possible.

Another method I have used with 100 percent success I learned from an old beekeeper many years ago. It sounds a bit drastic but it works. Remove the queen or kill her, remove a comb of brood with some honey capped, take the hive tool and make a hole about one inch square in the honey, being careful not to destroy the midrib. This will make you a small pool of honey; take the new queen from the cage and immerse her completely in the honey, being sure she is well covered, and allow her to go into the cluster. The bees will clean her up and accept her. Never wet bees or queens with sugar syrup as it will either kill them or shorten their lives. Bees cannot clean them well and the queen will be slick and shiny and soon be superseded. Sugar films form on wings of worker bees and shorten their life span as the wings are brittle due to film of sugar left. I only use the roll-in honey method during a flow in spring. Especially is it good when making increase. This brings up another point worthy of remembrance; in making increase when it is not desired to kill a queen (you are just giving a queen to the queenless part) always leave the old queen on the old stand and when your increase is placed on a new stand they will take the queens much better since the old bees return to the old queen. Care should be taken to give most all the bees to the new stand as the old bees are coming back.

Then there are those hard to requeen colonies like the ones I bought when I was a boy, black bees in old log gums and box hives. I often think of all the headaches and heartaches one misses in this day and time by not having to start the hard way like many of us did many years ago.

I have had black colonies and it seemed their favorite pastime was killing all the nice queens I could give them. This type of colony can be requeened and my method is a bit harsh, but they got harsh first. I kill the queen in the blacks and remove all the brood. Get a comb of brood from some decent bees and give to the colony. Next I carefully shake out and remove every bee from the black colony and plug the hive bee tight. Then release the new queen with her escort into the new hive. I prefer to do this late in the afternoon. Let the blacks stay out all night. Next morning they want a home and a mamma, so I fix the entrance to allow only one bee at the time to enter. They will go in and seem to sense they have been put on their good behavior and so will take the new queen. I have never had this method fail, honey flow or not. I have also used the smoke method; just remove queen, smoke bees real heavy, then run the new queen in followed with a little smoke. This works best in spring during a flow. I seldom use this any more, because when a flow is heavy enough for this to work the regular cage will do as well. It does save time, but I'd rather use the immerse-in-honey way.

Good queens cost money and like everything else we usually have to pay for what we get and a few cents paid for a quality queen is an investment above the cost of an ordinary queen. It pays to get the best and with some of these methods I believe you can have success in introduction. And the best time to requeen is when the bees need it regardless of the season.

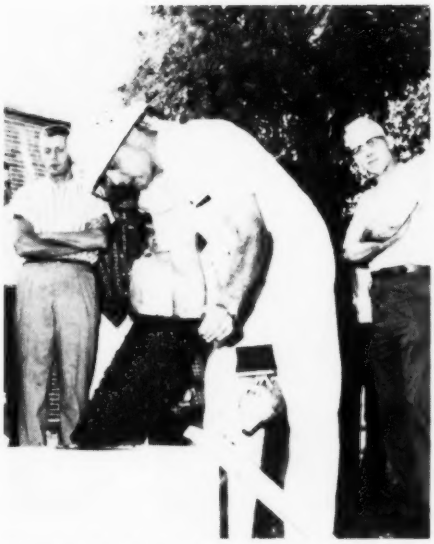
Governors Carry "Sweet Memory"

GOVERNORS OF the western states took a sweet memory of Utah with them when they left for home Wednesday after concluding the Western Governors' Conference.

S. K. Hampton of the Utah Honey Association gave a two-pound jar of Utah honey, plus a "Squeez-Bear" container to each of the governors "to let them know we have excellent honey in Utah."

"This is just a small gift of friendliness," said Mr. Hampton, who has been gifting honey to Utah visitors of note for the past several years. — From Deseret News and Telegram.

Ohio Beekeepers Meet



Norman Dunham gives a demonstration on how to correctly manipulate a colony of bees.

THIS MEETING held July 29-30 in Bellefontaine was one of the best we have experienced, there being over 200 in attendance.

President Charles E. Lewis of Akron got the meeting off to a good start by moderating a panel on swarm control.

Charles King of Ohio Experiment Station, Wooster, in his talk "Herbicides vs Honeybees", said beekeepers should discourage the use of 2-4 D. Insecticides if properly applied have a place and beekeepers should try to get them used in the right way.

There was a panel discussion on removing the honey crop moderated by program chairman, Richard D. Livermore of Belle Center. Some differences of opinion were brought out. However, the consensus was that the use of carbolic acid should be discouraged and that if used, extreme care should be exercised to prevent possibility of tainting the honey.

The bee quiz game introduced by Chas. A. Reese of Columbus went over well. Some of the experts were made to realize that they still have much to learn about bees.

Dr. W. E. Dunham of Ohio State University spoke on Bee Research at the University such as the modified two-queen system, wax rendering, pollination, — to mention a few. Honeybees do get considerable pollen and some nectar from red clover.

Nosema, an adult bee disease that may make its appearance in the spring, may cause from 30 to 60 percent loss of the field force in some colonies.

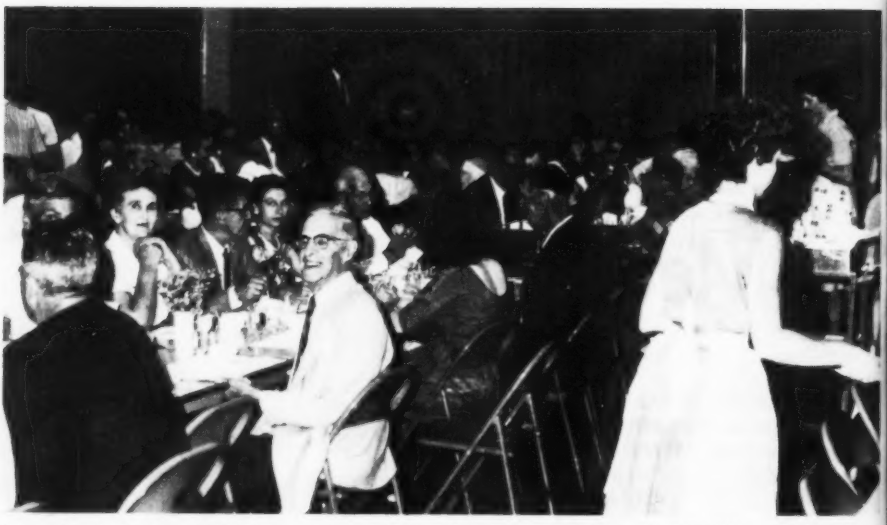
Emerson Long of St. Paris, speaking on "Bright Spots in Beekeeping", said the beekeeper can always get plenty of fresh air, he can work eight months and rest four months and he can be his own boss.

Robert H. Terhune, Director of Agriculture of Ohio, gave a talk on "Ohio —the Market Basket State" in which he called attention to the important position Ohio holds in producing and processing foods.

Jack Happ, Managing Editor of Gleanings led a panel discussion on questions received from the floor. Panel discussions are becoming more common, presumably because they give an opportunity for audience participation.

The beekeepers' banquet, a delightful occasion with Emerson Long as toastmaster was highlighted with a splendid talk by Wilbur Wood, Director of Agriculture Extension Service, Ohio State University. Mr. Wood was given the opportunity of presenting Chas. A. Reese with a beautiful plaque in recognition of the splendid service he has rendered the beekeeping industry as bee inspector for 23 years and 14 years as Extension Specialist in Beekeeping for Ohio.

The Ladies' Auxiliary held a very successful "honey cooky contest". The cookies were judged by Mrs. James Penrod, Home Demonstration Agent, Bellefontaine, Mrs. Don Cooke, Aux-



The annual beekeepers' banquet was enjoyed by all. The hosts, Bellefontaine Beekeepers' Association are to be congratulated on helping to make the meeting such a success.

iliary President, and Mrs. John H. Happ.

Mrs. Cooke announced the winners during her talk on the men's program. The winners were: First prize, Mrs. Doris Frye, Bellefontaine, Ohio; second prize, Mrs. Gladys Roser, La Grange, Ohio; and third prize, Mrs. Myrtle Patterson, Franklin, Ohio.

At their own regular meeting the Ladies' Auxiliary also had a very interesting program. Mrs. Charles King was guest speaker. Her topic was "My Life in India". Mrs. Emerson Long gave a demonstration on "How to Roll Your Own Beeswax Candles."

Mrs. Don Cooke presided over the regular business meeting. Several projects were discussed. An election of new officers was held. They were as follows: Mrs. John H. Happ, President; Mrs. Doris Frye, Vice President; and Mrs. Lois Moore, Secy.-Treas. The meeting closed with the drawing of door prizes.

The Ohio State Beekeepers' Auxiliary held their meeting out of doors with 59 in attendance.

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M. J. DI

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SEPTEMBE

Two combs of white honey ready to be extracted. To the left a comb of brood with adhering bees standing in front of a super of section comb honey.

A Talk To Beekeepers

M. J. DEYELL

IF THERE ARE any more beautiful days than are found here in northern Ohio during late September, I would like to see them. But somehow such days, beautiful as they may be, bring a tinge of sadness, because the summer is gone, autumn is with us and winter is just around the corner.

Even the bees appear to know what is ahead. During warm days and cool nights the queens begin to restrict their egg laying, the bees fill the combs of the brood chamber with honey and pollen rather than carry it into the supers, and they are likely to act somewhat listless at times. They appear to appreciate a respite from the long arduous days of labor during summer months.

Differences in Localities

In most of the so-called clover regions, bees store little, if any, surplus during September. Fortunate is the beekeeper who has reserved enough honey for each colony in a food chamber for use during the late fall, winter and early spring months. In most clover regions bees are likely to make a living during September, and if so the owner of the bees is thankful.

Some beekeepers in such regions may not have reserved an ample amount of stores for winter and early spring, so it is necessary to feed sugar syrup. It seems preferable to feed thick sugar syrup, two parts granulated sugar to one part of water to make up the deficiency in stores rather early in the fall before the weather gets too cool to ripen the syrup properly.

There are various kinds of feeders. The friction top pail method is quite popular. Puncture the lid of a 10-pound pail with about a dozen holes made with a two-penny nail. Fill the pail with syrup, put on the lid and place it upside down over the frames of the brood chamber in order to let the bees take the syrup. It is necessary to place an empty hive body under the cover temporarily to make room for the pail of syrup or as many pails as are needed to feed the required amount of syrup.

In some sections of the country there is a good honey flow during September from goldenrod and aster. We have had swarms during September but this is the exception rather than the rule. In order to secure surplus honey during the fall months it is necessary to have the colonies very populous with bees. The reason some beekeepers do not secure larger crops of honey is that they do not have their bees in the proper condition to take advantage of the honey flow.

The Last Roundup

In regions that give a fall flow, beekeepers have an opportunity to check through their colonies thoroughly in readiness for winter. If any old worn-out queens are found they should be removed and replaced with young laying queens. Most of the old queens that are permitted to remain in colonies are likely to be superseded next spring, either during the fruit bloom honey flow or at the beginning of the main flow. Such supersedure is likely to reduce the amount of surplus honey stored. As a rule queens are more easily introduced during the late fall months than they are earlier in the season.

Winter Nothing but Strong Colonies

It hardly seems necessary to make this statement. However, we get letters from beekeepers over the country wishing to know if it is wise to divide colonies during early fall in order to increase the size of their apiaries. With expert manipulation it may be possible in some regions where there is a good fall flow to divide very strong colonies at the beginning of this flow, giving the queenless divisions young laying queens and having the divisions build up into colonies sufficiently populous to go into winter quarters. Generally speaking, however, such a procedure is not feasible, because the divided colonies may not have time to build up to proper strength for wintering successfully.

In our opinion it is preferable to have one real populous colony in the spring rather than four or five weaklings. It is sometimes possible to winter a colony that is below par in strength. However, if such a colony does pull through the winter, it is likely to be a liability the following spring because it is weak in bees and really should have a package of queenless bees added to strengthen it. This means labor and expense.

On the other hand a very populous colony, such as is sometimes wintered in a three story hive is strong enough in the spring to divide at the beginning of the fruit bloom and dandelion honey flow and with proper management both divisions can be brought up to good strength in time to take advantage of the clover flow. This, however, means expert management.

Advantage of a Scale Hive

For a number of years we have had a scale hive near the Gleanings office. Each morning I mark down the weight of the hive. This gives us a fairly good idea of what the bees are doing in outapiaries, although conditions may vary somewhat in different yards.

It is customary to take the weight of a scale hive quite early in the morning before many bees have gone to the field.

It is not uncommon for a scale hive to gain between 15 and 20 pounds in one day, in an area where weather conditions are favorable for nectar secretion and honey plants are plentiful. I have a brother, a commercial beekeeper in Ontario who had a colony in 1916 that made a gain of 26 pounds in one day during early July.

(Continued on page 568)

NEWS and EVENTS

CONNECTICUT
Middlesex County Beekeepers' Assn.
Haddam, Connecticut
September 17, 1961

The fall meeting of the Middlesex County Beekeepers' Association will be held at the Agricultural Center, Haddam, Connecticut, Sunday, September 17, at 2:00 p.m. Potluck supper after program. Bring a dish to pass.

The program will include a report on the Eastern Apicultural Society meeting at Connecticut University, August 10-12; making the most of the honey crop; experiences in catching swarms; reports from those who experimented with Argentine rape.

All interested in bees are welcome. — Cary A. Rowland, Secretary.

MISSOURI
Midwestern Beekeepers' Association
Kansas City, Missouri
September 10, 1961

The Midwestern Beekeepers' Association will hold its regular monthly meeting at the home of Mr. and Mrs. Walter A. Hill, 8440 Jarboe, Kansas City, Missouri, 2:30 p.m., Sunday, September 10, 1961. There will be a speaker and the subjects for discussion, packaging and sales. Refreshments will be served. Everyone welcome. — James A. Worrel, Secretary.

MINNESOTA
Honey Marketing Day
Alexandria, Minnesota
September 9, 1961

Mr. Glen McCoy, Minnesota Marketing Chairman, has set September 9 (Saturday) as honey marketing day for Minnesota beekeepers. Buyers will be invited to attend. Producers are asked to bring a representative sample of each grade they wish to offer.

Commercial producers will be charged a fee of $5.00. Smaller producers with 50 or more colonies will pay $2.00. No fee to packers. This event will be held at Alexandria, Minnesota. Seventy-five to 100 producers are expected to participate and bring samples. — F. Q. Bunch, Secretary.

ARKANSAS
South Arkansas Beekeepers to Hold October Meeting
Magnolia, Arkansas
October 7, 1961

October 7th will be the date of the fall meeting to be held at Magnolia, Arkansas. Come to this meeting and see many items of delicious cooking with honey and the awarding of valuable prizes to the winners. Why not get your wife to bake some of her best honey recipes and win one of the awards?

ARKANSAS
State Association to Meet
North Little Rock, Arkansas
October 28, 1961

The Arkansas State Beekeepers' Association will meet on Saturday, October 28, at either the North Little Rock Armory or the packing plant of the Fischer Honey Company in North Little Rock. This announcement has come from the Executive Committee of the Arkansas Honey Producers' and Packers' Association. Further details will appear in another issue.

TEXAS
Beekeepers' Annual Winter Meeting
College Station, Texas
November 13 and 14, 1961

The annual winter meeting of the Texas Beekeepers' Association will be held November 13 and 14, the second Monday and Tuesday in November,

according to Claud Burgin, Secretary-Treasurer. The Memorial Student Center, Texas A. & M. College, College Station, is once again the meeting site. More details will follow in the next issues of Gleanings.

NORTH DAKOTA
Beekeepers' Association
Jamestown, North Dakota
November 4, 1961

The North Dakota Beekeepers' Association will hold their annual meeting on November 4, 1961, in the Gladstone Hotel in Jamestown, North Dakota. — James R. Dogger, Sec.

NEW MEXICO
Beekeepers' Association
Socorro, New Mexico
December 2, 1961

The New Mexico Beekeepers' Association is now formulating plans for their winter meeting to be held Saturday, December 2nd at Socorro, New Mexico. More details will appear in future issues. Interested beekeepers can secure further information from Mr. Ersel Edwards, president, Los Lunas, New Mexico.

ILLINOIS
Cook-DuPage Beekeepers' Association
Chicago, Illinois
September 16, 1961

The Cook-DuPage Beekeepers' next meeting will be held at the Gold Dome Building in Garfield Park at Washington Blvd., Chicago, Illinois, September 16, at 8:00 p.m. This will be the first indoor meeting of our cold weather get-to-gether session and will start with a panel discussion. There should be a lot of questions as this is the time of year to know if we have had a success or failure in our beekeeping work the past season and why. Election of officers will take place at this meeting for the coming year so come and vote; if not, forever hold your peace if your choice was not elected. Mrs. Klebs, our hostess, says to bring sandwiches and cake, also your table service, for the September meeting.

Now take your calendar and pencil and mark the 21st of October for our 41st Anniversary meeting and banquet. You will not want to miss this one as our main speaker will be Dr. E. J. Dyce, Professor of Apiculture, Cornell University. This will be the first time we have had this outstanding speaker whom we have met through the Journals but the most of us not in person. Watch the next issue of Gleanings for a complete program. You will notice the date of this meeting has been advanced due to the bad weather the past year. No excuse for you long distance drivers this year, we hope.

For reservations please contact Edw, J. Danz, Secretary and Treasurer, at 1025 North Maplewood Avenue, Oak Park, Illinois.—Ralph O. Klebes, Publicity Chairman.

INTERNATIONAL BEEKEEPERS' WEEK

The decision, adopted after the deliberations of the International Congress of Rome in 1952, to hold an international demonstration dedicated to beekeeping every year, continues to have wide success.

In 1960 the "International Beekeepers' Week" was held from 13th to 20th November and in many countries, under the supervision of the beekeeping organizations which are members of Apimondia, many demonstrations were held which have confirmed once again that such events should be regularly held, and extended, in the future.

The Secretary General of Apimondia has therefore decided that the **"International Beekeepers' Week" should be held in the period 19th to 26th November next.**

It would be superfluous to give all the instructions and general information which were made known with the preceding circulars of 28th July 1959 and 25th June 1960. These instructions are intended to be — it is repeated — only a guide for the demonstrations which will be held, and which in each country can be extended in those ways which, according to the surroundings and local traditions, will be most suitable.

Apimondia will be pleased, for its part, to receive the most detailed news possible on the course of the demonstrations which will be organized, to which, as from now, it extends its best wishes for their fullest success. — A. Zappi Recordati Secretary General.

MASSACHUSETTS
Middlesex County Beekeepers' Assn.
Weston, Massachusetts
September 30, 1961

The last outdoor meeting of 1961 of the Middlesex County Beekeepers' Association will be held at the home and apiary of Mr. and Mrs. Putnam P. Flint, 34 North St., Weston, on September 30, at 2:00 p.m. In case of rain it will be held on October 1 at the same time. The club hive will be awarded to the lucky winner. Picnic suppers will be enjoyed by members and friends and coffee and ice cream provided by the association.—B. Carlson, Secretary.

MARYLAND
State Beekeepers' Association
Laurel, Maryland
September 16, 1961

The Maryland State Beekeepers' Association held its summer meeting in Boonsboro, Maryland, July 15th at which time the following officers were installed: John V. Lindner, President; Lloyd B. Shearman, Jr., Vice President; Arthur Strang, Recording Secretary; and James M. Marsh, Secretary-Treasurer, 4009 Beechwood Road, University Park, Hyattsville, Maryland.

After the business session and picnic lunch a tour and inspection of two commercial apiaries was conducted by Professor George J. Abrams of the University of Maryland and Mr. Harold Kelly of Silver Spring, Maryland.

The late summer meeting is tentatively set for September 16, 1961 at the home of Mr. and Mrs. William O. Robey, Laurel, Maryland. — Wm. O. Robey.

KANSAS
Northeastern Kansas Beekeepers' Assn.
Muncie, Kansas
October 1, 1961

The Northeastern Kansas Beekeepers' Association will meet October 1, 2:30 p.m. at the home of Maynard C. Curtis, 9505 Kansas St., Muncie, Kansas. E. W. Harman, Raytown, Missouri, will speak on labeling and marketing honey and winter preparation of bees. This will be our last outdoor meeting for the season. You are invited to attend. Refreshments will be served. —Mrs. Bert M. Parrish, Sec.

MASSACHUSETTS
Norfolk County Beekeepers' Assn.
Franklin, Massachusetts
September 10, 1961

The next meeting of the Norfolk County Beekeepers' Association will be held on Sunday, September 10, 1961, at the home of Mr. and Mrs. Horace W. Osborne, 1025 West Central Street, Franklin, Massachusetts, at 2:00 p.m. Among other things on the agenda are a short business meeting, a report on the E.A.S. Convention at Storrs, Connecticut, the opening of a hive, a contest of speed in getting a smoker going, and a picnic lunch. Bring your own lunch, the drinks are on the house. — Ralph S. Pease, Corresponding Secretary.

CALIFORNIA
BEE LAWS REVISED

Beginning September 15, California beekeepers will be required to identify each outapiary with a sign showing the owner's name, address and phone number, or a number assigned by the Director of Agriculture. The lettering on

(Continued on page 570)

Obituary

M. E. BALLARD

BEEKEEPERS WILL be grieved to learn of the death of M. E. BALLARD, at his home in Roxbury, New York, on July 9.

Mr. Ballard was born April 8, 1888, in North Branch, New York. Around 1915, he moved to Roxbury and started beekeeping on a larger scale, eventually becoming one of the largest commercial beekeepers in New York State.

He corresponded extensively with many beekeepers in the United States and several foreign countries.

Mr. Ballard is survived by his wife, a son, Paul, and three grandsons. Paul is one of the progressive young beekeepers in New York State, having a beekeeping business of his own. He will endeavor to carry on his father's business, as administrator, until the estate is settled.

Buy and Sell

Classified rates: 18¢ per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) count as one word. Copy should be in by the 10th of the month, preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. HUBBARD APIARIES, ONSTED, MICHIGAN.

IOWA HONEY, one can or truck loads. RUSSELL D. SMALLEY, BEAVER, IOWA.

CLOVER extracted honey in sixties. ABRAM BRUBAKER, 1525 September Dr., LANCASTER, PA.

TUPELO, wild flower, alfalfa, or orange, in 60's. LANCASTER COUNTY DUTCH GOLD APIARIES, 910 State St., LANCASTER, PA.

HONEY—In any size container, also Mail Order Dealer for Bee Supplies. Write for prices. L. E. ALLEN, TIPTON, MICH.

MICHIGAN'S finest raspberry, basswood, clover comb honey in 4 x 5 window cartoned sections. Deluxe extra fancy, $9.00 case; Extra fancy, $8.00; Fancy, $7.00; No. 1, $6.00; No. 2, $5.00. E. Z. QUICK WAY B FARMS, BOYNE FALLS, MICHIGAN.

NEAR WATER WHITE Orange honey. New crop - Florida. HUBBARD APIARIES, ONSTED, MICHIGAN.

WHITE CLOVER and white clover basswood honey in sixties. Any amount. Can deliver truck loads. PAUL ENGELHARDT, ANTWERP, NEW YORK.

BLUEBERRY, Fruitbloom, Clover or Goldenrod honey in 60's. Strained and heated to 160°. NORMAN SHARP, FISHERS, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

HONEY WANTED for bottling, all types in drums, tins, trailer and car lots. Send samples each lot. Write: CHAS. E. FARRIS CO., 99 Hudson St., NEW YORK CITY. Est. since 1910.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MUENCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 Bedford Ave., BROOKLYN, N. Y.

WANTED—Honey and Beeswax. WALLY'S BEE ENTERPRISE, Box 266, WALTHILL, NEBRASKA.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT CO., MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WANTED—Honey in 60 pound cans, also beeswax any quantity. L. E. ALLEN, TIPTON, MICHIGAN.

ALL GRADES extracted honey wanted in both 60 pound cans and 600 pound drums. PRAIRIE VIEW HONEY CO., 12303 12th St., DETROIT 6, MICHIGAN.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

WE RENDER cappings, old combs and buy your beeswax. Shipping tags sent on request. M. R. CARY CORP., GPO Box 818, SYRACUSE 1, NEW YORK.

WANTED — Chunk and extracted honey. Send sample and price. RONALD CULP, CIRCLEVILLE, OHIO.

WANTED — Clover. goldenrod, and buckwheat honey. Write and send samples. CLOVERDALE HONEY CO., FREDONIA, N. Y.

HONEY WANTED — BUCKWHEAT and CLOVER, send sample and price. GREULICK & SON, SCOTIA, NEW YORK.

BEE SUPPLIES FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. HUBBARD APIARIES, Manufacturers of Beekeepers' Supplies and Comb Foundation, ONSTED, MICHIGAN.

THE BIGGEST Bee Supply Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

QUEENBEE PAINTING OUTFITS, $1.50. INTERLOOKERS, $3.00 postpaid. SOUTHWICK APIARIES, WABAN, MASS.

FREE CATALOG—Cypress bee hives and bee supplies. Save up to 40% on hives that last. MYERS CRAFT MANUFACTURING CO., BURGAW, NORTH CAROLINA.

FREE Pair Summer Cool Bee Gloves with each purchase of HUBBARD'S Master Electric Uncapping Knife at $13.75 Postpaid anywhere in the U.S.A. HUBBARD APIARIES, ONSTED, MICHIGAN.

BEFORE YOU SELL your honey or buy your honey containers see HUBBARD APIARIES, ONSTED, MICHIGAN.

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FOR SALE — Miscellaneous Used
1 - 1000 pound Clark Lift Truck
1 - 4000 pound Clark Lift Truck
1 - 50-Frame Woodman
1 - 30-Frame Woodman
1 - 24-Frame Radial
1 - 4-Frame Reversible
Ask for list of used Honey Tanks and other Extractors. HUBBARD APIARIES, ONSTED, MICHIGAN.

FOR SALE—65 colonies bees, supers, radial extractor etc. No junk. No AFB. JEROME STANGE, LOYAL, WISCONSIN.

BOGENSCHUTZ uncapping machine, perfect condition. Complete with electric heating units. First $500 takes it. Pick it up in Syracuse. PAUL ENGELHARDT, ANTWERP, N. Y.

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PROPIONIC ANHYDRIDE will be in stock September 1. All new, Food and Drug approved on August 2 for removing honey from bees. For free information. HUBBARD APIARIES, ONSTED, MICHIGAN.

300 STANDARD, 2-story hives, excellent shape, production equipment for honey, royal jelly, queen or package. Owner retiring. Very favorable records available. Located in citrus, all year jelly production, trade has taken all jelly that could produce in the past, honey picked up at shed, 1960 production over 50 barrels. Five room and bath masonry house for sale or lease. All for sale or share deal with option to buy to sincere, ambitious bee man with references. Reasonable prices. Write for details on bees or house. MARVIN BROWN, Rt. 1, Box 215, DOVER, FLA.

APIARY, 5 room lakeside cottage, bee house, location, truck, good honey area. Rent bees two or three times yearly. FRED RUSSELL, CHELMSFORD, MASS.

FOR SALE — Three bedroom home, bees, locations, complete honey packing business on State highway near Orlando, Florida. Write PHIL PACKARD, OVIEDO, FLORIDA.

FOR SALE: LITTLEFIELD APIARIES, Exira, Iowa. Over 800 colonies in 28 yards within 20 miles radius of Exira. 70 pounds honey per colony to winter. Honey house in Exira on one-half block of ground. Fully equipped. Special uncapping machine and extractors eliminate need of removing frames from supers in extracting. Five settling tanks. 1961 honey flow over 100,000 pounds. Desire to sell as a going business. Sale made necessary by death of Roy S. Littlefield. Contact ENA S. LITTLEFIELD, Executrix or FRANK N. RASMUSSEN, Att'y., both of EXIRA, IOWA.

BEES AND QUEENS FOR SALE

WE USE ALL POSSIBLE CARE in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CARNIOLAN and CAUCASIAN BEES for 1961. Booking queens, each $1.25, clipped and marked. 2 pound package with queen, $4.00. 3 pound package with queen, $5.00. LEWIS & TILLERY BEE CO., R. 3, Box 261, Phone DU 2-8371, GREENVILLE, ALABAMA.

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"SWARMING STOPPED COLD"
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No Gimmicks
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Bigger Crops - Better Beekeeping
Full Directions Price $1.00
BAKER'S APIARIES
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J. E. WING & SONS
49 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
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BEST SIXTY for the SIXTIES
Made & Jobbed
By Folks Interested
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THE CONNEAUT CAN CO.
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HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
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5520 Northwest Highway Chicago 30, Ill.

PRODUCTIVE ITALIAN QUEENS–$1.00 each. 10 up, 90¢. SHIRL BAKER, MECOSTA, MICH.

QUALITY ITALIAN QUEEN BEES–Summer Prices–each $1.00, 5 or more, 90¢ each, 25 or more, 85¢ each. A. G. WOODMAN CO., GRAND RAPIDS 4, MICH. or LENA, S. C.

DOUBLE GRAFTED Jumbo Italian Queens, $1.20 each, $12.00 per dozen. SHEPPARD APIARIES, ABERDEEN, N. C.

FOR SALE as unit or in part 2,000 colonies with choice Wisconsin locations. Crop average per colony up to 250 pounds. Terms to suit available. SCHULTZ HONEY FARMS, RIPON, WISCONSIN.

FOR SALE – 100 colonies of bees N. W. Ohio with honey crop. BOX 8, GLEANINGS, MEDINA, OHIO.

FOR SALE–125 colonies of Caucasian Bees in 10-frame hives, with 1961 white clover honey crop intact and included. Must sell on account of ill health. N. L. Rinehart, TANEYTOWN, MARYLAND.

SEEDS

HONEY PLANTS our specialty. Catalog on request. PELLET GARDENS, ATLANTIC, IOWA.

BALL CLOVER SEED – Makes good growth in cold winter months and excellent bee pasture in spring – has survived temperatures of -9°F., over 2300 blooms per square yard. Five pounds plant one acre on well prepared seed bed. Five pounds, $7.50 p.p. Write for quantity prices. CARTER PERCY, WEYANOKE, LOUISIANA.

MISCELLANEOUS

BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey, and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, Rt. 1, LAWSON, MO.

RENDERING every day in our all new plant. All honey saved from cappings. Rendering slumgum and old combs. Write for free shipping tags and rates. HUBBARD APIARIES, ONSTED, MICHIGAN.

LEARN PROFITABLE Sideline Raising Wax Worms. HUBBARD APIARIES, ONSTED, MICH.

OF INTEREST TO WOMEN

PLASTIC FREEZER CONTAINERS – Square pints, $9.95; quarts, $15.00 per hundred, postpaid. Sample pint, 25¢. OXBORO, Box 7031 CF MINNEAPOLIS 11, MINN.

WANTED

LARGE BEE SUPPLY Manufacturer and Honey Processor wants Supply Dealers and Honey Buyers. Write for Catalog and Honey Prices. HUBBARD APIARIES, ONSTED, MICH.

WANTED TO BUY – 300-500 colonies, preferably 500 mile radius of South Dakota. E. L. HARTER, Box 652, HOT SPRINGS, SO. DAK.

WANTED–Two copies of book "A Thousand Answers to Beekeeping Questions". L. H. UFFORD, BELLOWS FALLS, VT.

POSITION WANTED

BEEMAN wants position somewhere in California. 25 years with bees. DOMINICK PORPIGLIA, Ontario Road, IRVING, N. Y.

ROYAL JELLY

SUPER STRENGTH 100 mg. Royal Jelly capsules in bottles of 100 for $10.00. PRAIRIE VIEW HONEY CO., 12303 Twelfth St., DETROIT 6, MICHIGAN.

PURE ROYAL JELLY – $8.00 per ounce, postpaid. Write for Wholesale prices. THE STOVER APIARIES, INC., MAYHEW, MISS.

MAGAZINES

THE SCOTTISH BEEKEEPER (The official organ of the Scottish Beekeepers' Association.) Scottish in character, international in appeal. Annual subscription $2 post free. Sample copy from ROBERT N. H. SKILLING, F.S.C.T., 87 King St., KILMARNOCK, AYSHIRE.

INDIAN BEE JOURNAL, know interesting facts concerning the honeybees of India. The only Bee Journal of India published in English. Subscription Rs. 12/- or Sh. 17/6d (Sterling) or $2.75 per year (INTERNATIONAL M.O.). Sample copy 2s. or 25 cents. Can be had from The Managing Editor, Indian Bee Journal, Naini Tal, U.P., India.

PROFIT AND HEALTH–Raise dairy goats. Learn how. Monthly magazine, $2 yearly; sample and information 25¢. DAIRY GOAT JOURNAL, COLUMBIA T3, MISSOURI.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription, $3.00. Box 189, SAN ANGELO, TEXAS.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping, and also Apicultural Abstracts. Bee World is $9.00 a year to non-members. but the B.R.A. membership subscription of $7.00 includes Bee World. B.R.A. members in America are served by the B.R.A. American Committee, and have their own Branch Library at O.A.C. Details free (or with specimen Bee World and new B.R.A. Handbook, 50 cents) from Apiculture Department, Ontario Agricultural College, Guelph, Ontario, Canada.

ARCHIV FUR BIENENKUNDE, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest scientific bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. BIENE-VERLAG, GIEBELBACHSTR, 19, LINDAU (B) GERMANY.

KEEP

GLEANINGS

COMING

GLEANINGS IN BEE CULTURE

RESEARCH REVIEW

(Continued from page 541)

of research is a machine recently developed to analyze gases and vapors. It is fantastically accurate. For example, if one pound of substance were diluted in 10 railroad tank cars of water (500 tons), 1/30 of one drop of this solution would be sufficient for an analysis! Perhaps in a few years one drop of honey analyzed by this machine may yield information concerning its floral source, method of processing, and its flavor. At present this apparatus is being used in apiculture to study chemicals used by bees in their communication. Unfortunately, these gadgets cost approximately $5,000 each.

The beekeeper's product is honey while the scientist's product is new information. A good honey crop is needed each year to make the beekeeper's career profitable. But only one major scientific discovery in the lifetime of a scientist can make his career profitable. For example, Langstroth's experiments with bee space laid the foundation for the beekeeping industry of today.

Research in beekeeping is truly entering a new era in today's space age, an era which will challenge beekeepers as well as scientists to keep pace with modern advances.

QUEENS THAT SATISFY

From improved yellow banded Hybrid strain. Marked and clipped unless otherwise specified. Shipped Air Mail for quicker delivery.

1 to 24, $1.10 25 up, $1.00

No packages please.

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Texas Caucasian Queens

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Live arrival and Health Certificate guaranteed

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Gulf Coast Bee Co.

SCHRIEVER. LA.

RICH MOUNTAIN APIARIES

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Will this year offer the famous "LITTLE" strain of Italian queens.

Have been wholesaling to Little Apiaries for the past several years.

QUEENS 1 to 24 ..... $1.20
25 to 50 ..... 1.10

Discount on large orders. Queens marked and clipped FREE when requested.

Booking orders now.
Over 35 years a shipper.
Send for FREE Circulars.

BLUE BONNET APIARIES also HOME of AULT BEE FARMS
Weslaco, Texas

HYBRID QUEENS

are necessary to show the extra pounds of honey for beekeeping profit. **MIDNITE HYBRIDS** give you the extra good wintering colonies plus the ability to store honey in beautiful white capped combs. If wintering is your problem plan now to incorporate **MIDNITE HYBRIDS** in your own testing program.

STARLINE HYBRIDS, the oldest commercially successful hybrid available brings you the vigor of a hybrid strain in the Italian race. COMPLETELY NEW this season, this STARLINE has been tested for five seasons bringing you the finest strain of bees available. If you have not used the **NEW STARLINE,** requeen out all of your poorer queens and try them for your next honey crop.

ALL HYBRID queens are reared under constant, stimulant feeding to insure large, well-developed queens to head populous colonies. Plan on using these queens in all your normal work. RETURN MAIL shipments throughout summer and early fall.

Quantity	1 to 25	26-99	100 up
STARLINE or MIDNITE	$1.30	$1.20	$1.00
Italian	1.00	.90	.80

Clipped and marked by experienced handlers for only 15¢ each additional.

YORK BEE COMPANY

BOX 300 JESUP, GEORGIA

The strains preferred by leading Honey Producers.

Write us for further descriptive folders on the Midnite and Starline hybrids.

PUSH OF PROGRESS

(Continued from page 535)

evil monster bent on destroying a way of life.

Our country road has been widened at the expense of 12 feet of our property front and the speed limit raised. Many careless foolish drivers rush by invariably 10 miles over the limit. It is no longer safe for pets and children. One seldom sees the children walk the road these days. The small store on the corner is closed and must be torn down. I predict the erection of another gas station. There must have been at least 20 of them put up within a 20 mile radius.

With the closing of this store and another not far away our bright jars of honey will no longer be displayed within. These stores were two good markets for our product. Fortunately this year we shall not miss the sales. We sold our last three jars just two days ago — to a customer of five years standing. It is good to have regular customers and easy when the product actually sells itself.

Our crop for this season does not look too large. We lost a colony in the deep freeze this past rugged winter. "The Lord giveth and the Lord taketh away." This is a redeeming thought for most happenings. Ted neglected our hives this spring, having had to make a number of out of town trips on business. We had our first swarm in five years. However, it was easily hived from its landing place on a low branch of an apple tree. Therefore, we have another colony busily working at present on a sizable bed of thick clover planted two years ago.

Progress moves ever onward. With freeways and dual lane highways the city moves closer. Our well seems next in line to be replaced, by city water. Regardless, we shall keep our well as long as possible. To us water tastes better from a well or a spring. It may be a silly thought but we believe our bees will not like a change of water either.

Perhaps I am wrong, but I believe people are less friendly and less contented in this age of speed. To me this rush rush of life leaves no time to enjoy the simple old fashioned pleasures.

It is certainly no pleasure to drive any more with the battle of fighting traffic on congested highways. It is a happy moment to come home safely where we can relax under our own trees. We are thankful then we still have a place with enough room to keep our bees.

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Dark
ITALIAN QUEENS
1 to 19 .. $1.00 20 to 99 .. 90¢
100 up ..... 85¢
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Hardy Northern Italian
Queens, $1.00 each, to Nov. 1st.
Fifty years of successful queen breeding on top of the Allegheny mountains.
Hardy Stock.
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Beeswax Rendering Service
Exchange Your Beeswax
for Foundation
Write for Price List.
WAX WORKERS, INC.
1330 Slaterville Rd. Ithaca, N. Y.

HARPER'S
FAMOUS HIGH QUALITY
ITALIAN QUEENS
By Air Mail after June 10th
85¢ each
10 for $8.00 100 for $75.00
We will be happy to supply your needs.
CARLUS T. HARPER
New Brockton, Ala.

A LETTER FROM A SCOTTISH BEEKEEPER

(Continued from page 540)

tained and a young queen is produced to head the stock at the heather. Any stock with a two-year-old queen that doesn't build queen cells second year running is no use for the heather but if the bees are otherwise O. K. such a stock may be worth-while breeding from.

After the supers are off at the end of July the colony is cut down to a single brood chamber if it has not been cut down before. The idea behind this is to get the bees to put all the heather honey in the supers. It's a funny thing that even a strain that tends to store high will cram the brood chamber with heather honey rather than put it in the supers. Hence the advantage of cutting down the brood chamber by a half. Also a young queen will keep the combs pretty well full of brood so the heather honey all goes up top.

When the bees come back from the heather they are given back their other brood box and if they need it they are fed with syrup. By that time it will be the second or third week in September.

The winters here are usually mild but for the most part it's too cold for the bees to fly. They are, however, never long kept prisoners in their hives, usually a mild day comes along now and again to let them out for a cleansing flight. The biggest bugbear in our winters is dampness and if hives aren't properly ventilated moldy combs and sickly bees can be the result. The entrance block is taken out and a strip of perforated zinc pinned on with thumb tacks. There is a ¼ inch slot for the bees to get out and in but otherwise the perforated zinc keeps out mice. The "crown board" is taken off and replaced by a heather traveling screen which covers the whole top of the combs. The entrance block is placed on top of the screen to leave an air gap under the roof.

I have tried Dr. Farrar's two queen system and like it a lot. We can't get young queens early in the year in this country but it is fairly easy to winter them from the previous summer. A nucleus on five or six combs can be wintered if a bit of care is taken.

There are a few commercial beekeepers in Scotland but they are mainly on the eastern side of the country. Yields vary very much, usually we get two good seasons every six years and two not too bad. In 1954, for example, the sycamore failed and so did the clover, the lime and the heather. I fed my bees dry sugar the whole summer and then had to provide their entire winter stores. The next year was good. I had several colonies giving over 100 pounds each at the clover — the average, winter count, was 75 pounds per colony. I have been keeping bees 14 years and 1955 has been my best and 1954 my worst.

I like to see that my queens are reasonably young and that they are never at any time in the spring or summer short of comb room for laying. This means that careful attention has to be given at all times to supering. I think that it is true that a queen excluder is in some ways a honey excluder and an excluder can contribute to congestion of the brood nest when the bees store the honey there instead of in the supers. If the bees seem to be storing too much below, I help them out by simply moving a comb or two into the super. The bees need to be well fed at all times and need to be kept dry in winter. If we look after our bees the surplus honey will look after itself.

I hope you have been interested in this brief description of beekeeping in my part of Scotland, but in closing, it would be appropriate for me to express gratitude to American beekeepers for the lead they give in beekeeping.

QUEENS

CARNIOLAN & CAUCASIAN

August and September is a good time to requeen for young bees for winter and quick build-up in spring. Your colonies are no better than the queen heading them, so why not have the best?

— SPECIAL —

50 Queens for $50.00

(through September)

W. D. REAMS

Box 458 LaBelle, Fla.

A TALK TO BEEKEEPERS

(Continued from page 558)

It is interesting to get the weight of a scale hive late in the evening after the bees are in from the fields and then get the weight of the hive the next morning. The weight of the colony shrinks during the night. For example, a colony that makes a net gain of 10 ponds in a day would lose two or three pounds during the night as a result of the bees driving off excess moisture from the nectar.

Removing Surplus Honey

There are various methods of removing surplus, one of the most common among back-lot beekeepers being to shake the bees off combs of honey in front of the hives, then carry the super of honey into the honey house.

The bee escape is a handy method to remove surplus. One must be sure, however, to close all small openings in supers above the bee escape. If even a small opening is left, the bees in the apiary will find it and enter the super and in due time remove most of the honey.

During the recent Ohio State bee meeting a panel discussion centered around methods of removing surplus honey. A number of beekeepers, especially the commercial class, drive bees out of the supers with carbolic acid. This method has been subjected to some criticism due to the possibility of damaging the flavor of the honey. The consensus at the meeting seemed to be that the carbolic acid method should be discarded if possible.

Just recently a new chemical has been found for repelling bees from honey supers. It is called Propionic Anhydride.

An item concerning this chemical, how it works and where it may be obtained appears in this issue of Gleanings. (See page 536.)

Beekeepers over the country, especially commercial honey producers should welcome the opportunity to try out this new bee repellent to take the place of the carbolic acid method.

Requeening — Does it Pay?

On one of my trips attending meetings I met two commercial beekeepers who talked about requeening. One of them said that he requeens all colonies in the fall. The other requeens only colonies with failing queens. He said that in his experience two year old queens sometimes do better work than year old queens.

Some years ago we made a practice of requeening all of our colonies annually during the month of August. If we had requeened one-half of each apiary in order to have what might be called check colonies in each yard, to make a comparison, we would have learned more about the alleged value of requeening annually. I do feel that in some instances we removed better queens than we put into the hives in replacing those taken out. It seems a shame to pinch the heads of perfectly good looking queens. However, there is the possibility of such normal appearing queens failing the following spring during the up-grade of brood rearing. When this occurs, colonies are quite often valueless unless the owner of the bees detects signs of supersedure in time to remove old queens and replace them with new ones.

One fall when I visited my brother in Lindsay, Ontario, I inquired if he had finished his requeening. He said that he had not requeened annually for a number of years but that he had tried to replace all failing queens when found.

Inasmuch as there are differences in queens — even sister queens in the same apiary, and since queens are worked hard these days, especially in the production of extracted honey, it would seem that a method of replacing all queens that show signs of failure is a good one to adopt.

Beginners in beekeeping will want to know how to detect signs of failure in queens. It is usually an easy matter to tell a young queen from an old one. The young queen still has some of the hair on her body, is bigger in appearance and walks over the combs in sprightly fashion and if she is prolific lays solid areas of brood, provided, of course, the combs consist mainly of worker cells.

A poor queen may be rather shiny in appearance, somewhat slow in her movement over the combs, perhaps undersized in appearance and lays in scattered fashion.

LOW COST FALL INCREASE

(Continued from page 531)

or from a colony that is headed by an outstanding queen of your choice. Then on top of the supers piled on the bottom board put a screen board with the entrance towards the back of the hive. On this screen board put the super containing the old queen and her brood. An empty super may also be put on top of this super containing the queen then the hive cover. In about a month both parts of this hive should be checked to make sure there is a laying queen in each part. You will usually find two good growing colonies of bees under this one roof. By making sure that each part has super room in early September they will each usually store sufficient honey to carry them over the winter.

I leave them stacked over each other with the screen board in between until early the next spring when I set the top colony off and supply that one with a new bottom board and cover. These colonies are then prepared to build up, using a two queen system with a southern queen as previously explained on page 410 of the July 1958 issue of Gleanings.

It is again noted that if you have a dependable fall honey flow you will be able to about double the number of your colonies at a very reasonable cost, by using this system.

Editor's Note: Apparently Mr. Orth is in a locality where there is a dependable fall flow during late August and September. There must be a good honey flow in order to make increase during the late summer and early fall months.

MASS PRODUCTION OF HONEYBEE LARVAE

(Continued from page 552)

in nature. The addition of some bee larvae as a dietary supplement might have beneficial effects.

There is no doubt that bee larvae could be produced on a tonnage basis if the proper markets are found. There are many interesting possibilities to be explored on both domestic and foreign markets.

References Cited

Gary, Norman E., Robert W. Ficken and Robert C. Stein (1961). Honey bee larvae (**Apis mellifera, L.**) for bird food. The Avicultural Magazine. **67**:27-32.

Hocking, B. and F. Matsumura (1960). Bee brood as food. Bee World. **41**:113-20.

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Top Quality
Postpaid Air Mail
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Italian queens $1.00
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Improved
LEATHER ITALIAN QUEENS
Recommended
For Comb Honey Production
Yard run stock .....$ .75 each
Select tested ..... 3.00 each
Inquire about delivery dates on this stock.
Approved Breeders $5.00 each
WORLD WIDE SHIPMENTS
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NORMAN'S QUEENS
Improved 3-Banded Italians
65¢ Air Mail
Requeen with nice young dependable laying queens. Safe arrival guaranteed with health certificate.
Young laying queens ...$ .65
Select tested queens 1.50
2-lb. pkg. w/q 3.00
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All queens postpaid, packages F.O.B.
NORMAN BEE CO.
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When Answering Advertisements, Please Mention GLEANINGS IN BEE CULTURE

NEWS AND EVENTS

(Continued from page 561)

the sign must be black and at least one inch high. The sign is to be placed at the entrance side of the apiary.

The purpose of this change is to provide a more dependable means of identifying apiaries for inspection or for notification to the beekeeper when injurious pesticides must be applied.

Apiaries in California must be registered each November with the Agricultural Commissioner of the county in which the bees are located. Registration is free and consists of listing the location of each apiary and the number of colonies at each location.

Apiary movements must be reported within five days to the Agricultural Commissioner in the county where the movement originated. A similar notice must be sent to the county of destination if the colonies are moved to another county. The movement notice must indicate how many colonies were moved and how many colonies were left at the original location as well as describing the point of origin and destination.

Inspectors may enter any apiary to determine whether AFB disease is present. All colonies must be kept in movable comb hives. Apiary operators must abate by burning or delivery to a licensed wax-salvage plant any AFB disease found in their apiaries. Any apiary in which AFB disease is found to exceed one percent may be placed in quarantine until the disease has been abated. Nothing may be removed from a quarantined apiary, except under the direct supervision of an inspector, unless a permit is obtained.

Extraction or rendering of honey, pollen or wax from comb must be done in a bee-tight building or enclosure. Supers of comb must be covered when being transported from an apiary. Stored supers of comb must be enclosed to prevent exposure to bees. Supers of wet comb must not be exposed to robbing in an apiary. Open-air feeding of honey is prohibited.

Revisions have also been made in certification requirements for bees and used beekeeping equipment entering California. Health certificates are no longer required for queen bees in screened cages with attendants. Certification is required on package bees, bees on comb, and used hives or appliances. Shipments of queen bees or package bees must be accompanied by an affidavit signed by the shipper indicating that only sucrose or manufactured invert sugar is used as food for the bees during transit. — Homer Len Foote, Supervisor Apiary Inspection, California Dept. of Agri., Sacramento, California.

QUEENS

Italians Caucasians

Nice large queens .... 75¢ each

Air Mail Extra Clip and Mark 10¢

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QUALITY BRED
CAUCASIANS

1-24 ..... 85¢
25 & up ..... 75¢

All Queens Postpaid Air Mail.
Health Certificate
and Live Arrival Guaranteed.

HOLDER HOMAN
Shannon, Miss.
Phone PO 7-3880

USING THREE BROOD CHAMBERS IN FLORIDA

(Continued from page 530)

lation small during all main honey flows, which come from about March 1st to June in his area. These small colonies placed much of the honey they gathered in combs in the brood chamber, thereby limiting the number of cells available to the queen for egg laying.

Dr. Moeller reminded us while examining the colonies, that during a honey flow there is considerable competition between the queen and the field bees, loaded with nectar, for empty cells in the brood chamber. This is especially true if a queen excluder is used and if the super combs contain foundation instead of drawn comb. How often we have pulled a comb out of the brood nest, shaken it and had fresh nectar fall out. If there aren't very many cells available in the first place, as is the case when we have only one ten frame brood chamber, already largely filled with brood, honey and pollen, we can see why the queen might find it impossible to lay very many eggs per day during a honey flow. This reduced egg laying would result in a "dwindling" colony three weeks later.

During July, August and September there is very little bee activity in this area. The bees may consume more honey and pollen than they produce. By December, Mr. Jorgensen had always found it necessary to leave what honey had been stored in shallow supers on the colonies for winter food, since he didn't wish to feed sugar syrup. And so he had been a "Keeper of bees" rather than a honey producer.

More Honey in April

I should add here that on May 12, 1961, Mr. Jorgensen and I again went through his colonies and found about 75 pounds of honey on each of those in the "three brood chamber" project. He had extracted all orange honey in the supers (shown in the picture) shortly after March 25th when the picture was taken. Part of this honey we found to be from orange blossoms, at first stored in the brood chambers and later moved up into the supers. The rest was from Palmetto bloom.

What Remains to be Told

In Part 2, I wish to tell about the details of "Three brood chamber" management and how swarming was controlled with a minimum of labor. Mr. Jorgensen is setting up some one-brood chamber colonies for comparison, since we wish to continue the project for another year.

(to be continued)

QUEENS
65¢ EACH
By Air Mail

Bright 3-Band Italian bees and queens. Highest quality, purely mated, good producers. Safe arrival and satisfaction. State Health Certificate furnished.

Young Laying Queens	$ .65
Tested Queens	1.50
2-lb. pkgs. w/q	3.00
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Packages shipped F.O.B. Express or Parcel Post, Postage Collect.

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QUALITY BRED QUEENS
"CAUCASIANS"

Breeders furnished by J. E. Hastings. Bred for honey production, hardiness and gentleness.

1-24	$1.10 each
24-99	1.00 each
99 & Up	.90 each

Italian queens, 75¢ each or $65.00 per hundred.

All queens shipped Air Mail.

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QUEENS
ITALIAN
NORTHERN TESTED STOCK
A Dependable Source of Good Early Queens

June 1 to October 1
75¢ each, any number

We ship only the best.

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Stuck Tight

ROBERT J. WYNDHAM
Upland, Calif.

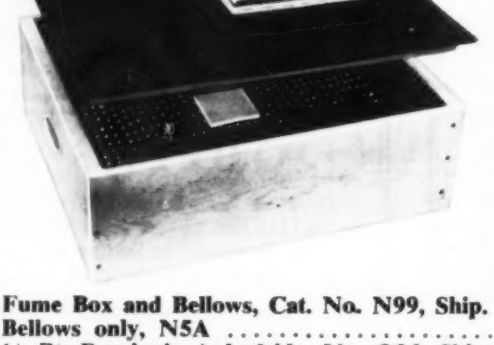
IT SEEMS YOU can't keep bees without running into some emergency or other every season. That was what I thought when I intended to drain 600 pounds of honey from a settling tank and found that the gate was hopelessly stuck. It would not budge no matter how hard I tried. The thought that I should have checked that gate before filling that tank, made me only more furious. The tank had not been used for two years. Evidently some honey in the gate had granulated and now immobilized it.

It seems that we need an emergency to bring to the surface whatever resourcefulness may be slumbering in us. Heat should do the trick, I reasoned. Then I remembered I had an almost forgotten heat bulb in my garage. A 250 watt infra-red reflector bulb, to be precise.

I screwed it into a porcelain socket (never use a regular socket for a heat bulb). I bent the end of a thin steel rod into a ring and pulled the cord through it. I placed the rod on top of the tank cover, the ring centered above the gate. To make the rod stay put I weighted it down with a rock. Then I lowered the bulb to within ¼" above the obstinate gate and hopefully turned on the current.

After an hour I was so impatient to find out if my scheme had worked, that I burned my hand. But I didn't mind too much, for I opened the gate without any effort!

REMOVE HONEY SAFELY
WITH PROPIONIC ANHYDRIDE
DEVELOPED AND RECOMMENDED BY U.S.D.A



Propionic Anhydride is a liquid non-toxic chemical. To repel bees from supers, mix with equal parts of water and saturate the pad at the top of the fume box. Place over the super where honey is to be removed and work the bellows five or six air blasts.

Bees will leave super below in one or two minutes. Two men with a single fume chamber, using 2½ teaspoons of Anhydride, have removed 100 shallow supers in 1½ hours.

Fume Box and Bellows, Cat. No. N99, Ship. Wt. 12 Lbs.	**$4.85**
Bellows only, N5A	**1.50**
½ Pt. Propionic Anhydride, No. O86, Ship. Wt. 2 Lbs.	**.75**
1 Pt. " " " " Ship. Wt. 2 Lbs.	**1.25**
1 Gal. " " " " Ship. Wt. 10 Lbs.	**5.50†**

The A. I. Root Company, Medina, Ohio

TRENDS IN MARKETING HONEY

(Continued from page 525)

It is estimated that about half of the honey produced in this country moves directly from the producer to the retail store or household consumer. Over the years much of this honey has been sold at prices which are too low. This makes it difficult for either the commercial beekeeper or packer to make a reasonable profit. As a result the small beekeeper has been subjected to much criticism. This is unfortunate as there is a definite and important place for small beekeepers in the beekeeping industry and in many areas they are performing a valuable service.

FOR THOSE NIPPY DAYS

(Continued from page 549)

Combine bran cereal, ½ cup of the honey and milk; let stand until most of moisture is taken up. Stir in egg. Sift together flour, soda and salt. Add to first mixture, stirring only until combined. Put 1 teaspoon of remaining honey into bottom of each greased muffin cup; sprinkle with about 1 teaspoon currants. Fill about ⅔ full with batter. Bake in moderately hot oven, 400°F. about 25 minutes. Let stand about five minutes before removing from pans. Serve immediately, currant-side up. Yield: 12-15 muffins, 2¼-inches in diameter.

Honey Rye Bread

One and ½ packages yeast, 1 cup tepid water, 2 teaspoons honey, 1 cup milk, 3 tablespoons shortening, ½ cup honey, 1½ teaspoons salt, 1 cup potato water, 1 cup rye graham flour and about 5 cups sifted white flour.

Blend yeast with water and honey and let stand until foamy. Meanwhile scald milk, add shortening, honey and salt. When shortening has melted, add potato water and blend thoroughly. Add to yeast mixture, and stir in rye flour. Work in white flour to make a soft dough. Knead for about 10 minutes. Place in greased bowl, cover and let rise until double in bulk. Punch down, turn over and allow to rise until double in bulk. Form in 2 loaves. Place in well greased baking pans. Let rise about 45 minutes. Bake in moderate oven, 350°F. for 1 hour.

LIVE AND LEARN

(Continued from page 546)

The question is made more interesting by the fact that since noticing this, I have found solid combs of brood mixed in with scattered combs, and in nearly every case the solid combs were fairly new, and the scattered combs were very old.

Whether or not there is anything to this, it gives us something to think about. If true, how can we tell the dividing line between a good comb and a bad one, if the frame is filled solid with worker size cells? If it isn't true, then how come I never had this trouble when I was in a position to give the bees nice new drawn combs every season?

AN APPROVED METHOD FOR REPELLING BEES FROM HONEY SUPERS

(Continued from page 537)

ent lines of stock influence the degree of treatment required.

Bees will be repelled more rapidly from shallow than deep supers, from sealed than unsealed honey. One operator can operate only one fume chamber efficiently.

Two men, each using a single fume chamber (with 2 to 2½ tablespoonsful of the anhydride) removed 100 12-frame shallow supers in 90 minutes. In many instances the bees were repelled from two shallow supers at one time. Removal of Langstroth depth supers requires a little more time (i.e., 1½-2 minutes compared with 1 to 1½ minutes with the shallow supers). Four-mil. polyethylene vapor-barrier materal is suggested for wrapping the fume chamber when not in use.

Propionic anhydride is relatively non-corrosive to the operator's hands. However, care should be exercised to avoid direct contact. Wash well when necessary.

EDITORIALS

(Continued from page 545)

"Entirely too little is known about the maintenance of the highest possible spirit of work in colonies of bees during a good honey flow, and its importance is not fully realized. We talk about the necessity of having the colonies strong at the right time, but when some of these extra strong colonies actually store less than others having only half as many bees, simply because of some condition which reduces the spirit of work, it is evident that the maintenance of a high colony morale is in many cases even more important than having the colonies very strong. This is by no means an argument against strong colonies. The stronger they are the better, provided the great army of bees can be induced to work with the proper spirit. This is a problem that deserves careful study."

BETTER BRED QUEENS
Three Banded Italians
Buy our queens with confidence, assurance and honest dealings.
70¢ each
(the remainder of the season)
CALVERT APIARIES
Phone VA 9-6183 Calvert, Alabama

A BANKER'S BEES

(Continued from page 534)

time. We are feeding most of the wintered-over bees as well as the new package bees. I intend to try getting some of them built up to 1½ stories for the brood nest and the others in two story hives — even if it means no surplus for me.

Beekeeping means a lot of hard work on top of my regular job, but I get a lot of enjoyment out of it. I have seen a swarm of bees in October, but I think it was the result of someone cutting the tree they were probably in. I have been asked by friends in the city on more than one occasion, "Do you ever let your bees out of the hive"? This reminds me of the story about the city girl visiting friends on the farm. She was offered some milk at dinner and informed that they kept a cow. Later she was served some honey and said, "I see you also keep a bee". My friends in the bank refer to me as the beekeeper and my friends in the beekeeping world refer to me as the banker so I don't know what my profession is.

When Answering Advertisements, Please Mention GLEANINGS IN BEE CULTURE

Shoot for profit - - - - Shoot for the STAR
Order STARLINE queens this season and profit.
STARLINE: 1-24, $1.20 25-99, $1.15 100-up, $1.05
ITALIAN: 1-24, .90 25-99, .85 100-up, .75
Clipping 5¢ each, marking 5¢ each.
Reg. U. S. Pat. Off.
GARON BEE CO. DONALDSONVILLE, LA.

HOWARD WEAVER & SONS PERSONALLY REARED CAUCASIAN QUEENS
Choice of many: for Honey, Gentleness, Wintering
1 to 24 ..... $1.00
25 to 99 ..... .90
100 & up ..... .85
For Dadant Midnite Hybrid Queens, add 25¢ to the above prices. Queens clipped and marked at 10¢ each. State health certificate with each shipment. Live arrival guaranteed.
HOWARD WEAVER & SONS - - - - NAVASOTA, TEXAS

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The old reliable company offers you good queens for any use and in any quantity.

Prices: 1-9 . . 95¢ each 10-49 . . 90¢ each 50 up . . 80¢ each
Mark 5¢ and clip 5¢ each extra.

BESSONET BEE COMPANY Donaldsonville, La.

THREE BAND ITALIAN "QUEENS"

Never before have good queens been so important.
Serving those who demand the best.

— Prices —

1-9	10-49	50 up
$1.00	**90¢**	**80¢**

Caged fresh from our yards and rushed to you prepaid Air Mail.
Clip and mark, 10c extra.
Quality Does Not Cost — It Pays

THE WILBANKS APIARIES CLAXTON, GEORGIA

Queens

IMPROVED 3-BANDED ITALIANS

75¢

Via Return Air Mail 25 up, 65¢

Requeen with young vigorous dependable queens. Safe arrival, health certificate satisfaction in U.S.A. and Canada.

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3-lb. pkg. with queen 4.00
4-lb. pkg. with queen 5.00
Tested queen 1.50
All queens postpaid, pkg. F.O.B.

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When you think of

QUEENS

Think of:

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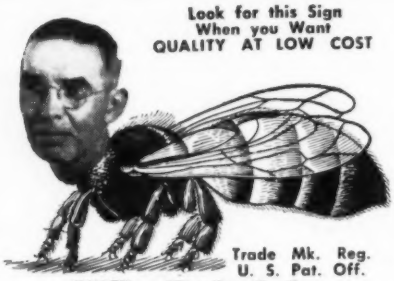
State Line, Miss.

Our 100% satisfaction has been good for 49 years, let us prove it.

Untested queens . . . . 75¢ each 50 up . . . . 65¢
Tested queens, ... $1.50 any number



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Prepaid Air Mail

1	$1.00
2 to 25	.75 each
25 & up	.70 "

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Clarkson, Ky.

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